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# ANNALS OF GYNECOLOGY AND PEDIATRY

A MONTHLY REVIEW OF GYNECOLOGY, OBSTETRICS,  
ABDOMINAL SURGERY, AND THE DISEASES OF CHILDREN.

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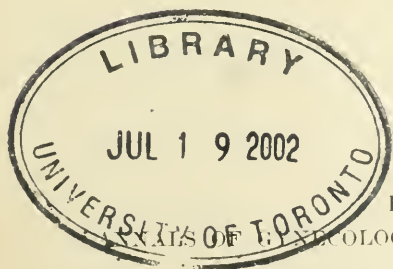
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FIG. 1.

Tuberculosis of peritoneum showing a cheesy degenerated focus (a) and on each side of it several miliary tubercles. On the lower side are several blood vessels in the subperitoneal tissues (b).

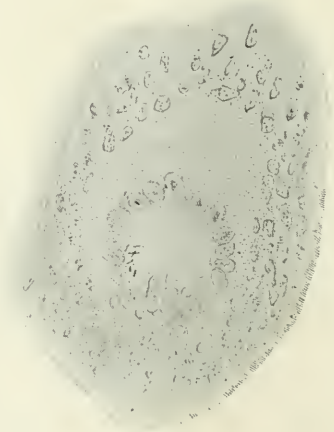


FIG. 2.

One of the tubercles shown in the preceding figure enlarged under 1·12 oil immersion, showing bacilli,

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### Original Communications.



#### TUBERCULAR PERITONITIS.

BY BAYARD HOLMES, B.S., M.D.

*Professor of Surgery in the College of Physicians and Surgeons of Chicago.*

TUBERCULAR peritonitis is a very common disease, though it does not show itself always unaccompanied by symptoms of tuberculosis elsewhere. In the post mortem rooms of large general hospitals tubercular peritonitis appears about once in ten or once in twenty sections. At Breslau\* in the years 1878-1884, 4,250 cases were examined in the post mortem rooms, 1,318 had tuberculosis of the lungs, 75 had acute miliary tuberculosis and 226 had tubercular peritonitis. Every hospital has many cases of this disease and every operating surgeon and gynæcologist runs across a tubercular peritoneum often enough to lead him to hold this con-

dition before him whatever condition seems to him most probable. Out of one hundred and fifteen consecutive operations in my own practice this disease appeared twice.

#### CASE I.

Mr. C., 38 years old, unmarried, from a healthy family, both father and mother living, had his first sickness five weeks ago. It came on suddenly while lifting, with a severe pain in the side, which is recognized as the region of the spleen. There was faintness and nausea and shock at the time. He was able, however, to go on with his work as a carpenter but noticed a rapid increase in the size of his abdomen, which increased from 32 to 46 inches in five weeks. He was examined by me on July 8. There was no evidence of any venereal disease and he asserted that he never had anything of this kind. There were no enlarged lymph-glands in the neck, axillas or groins,

\* Broschke, Max ; Pathogenese der Peritonitis tuberculosa, Virch Arch. Bd. 127, S. 136.

The lungs presented no evidence of tuberculosis. There was no cough and no sputa. The patient was not emaciated, but in good working condition. He had, however, an anxious look, a quick respiration, 20, a rapid heart, 104, and a temperature of 101° F. The abdomen was greatly distended with fluid. The legs were not oedematous. The urine contained no albumen and no casts. It contained 28 grams of urea per day and was normal in all respects. There was a sharp conjunctivitis in both eyes, but most marked in the left. This had been present only three days and the patient attributed the inflammation to contact with some serum, which had been aspirated from his abdomen.

The abdomen was filled with fluid to a point above the umbilicus when sitting. A diagnosis of tubercular peritonitis was made and drainage recommended. The patient was prepared in the usual manner by rest in bed, free cathartics and diuresis, and a saturation of the tissues with water.

In the presence of Dr. D. H. Galloway and with the help of the house staff of St. Luke's Hospital, I opened the abdomen in the middle line above the umbilicus and let out several quarts of serum containing a little blood, and exposed the intestines and omentum covered with small tubercles. A few of these were cut off from the abdominal wall and a drawing of a section is reproduced in Figs. 1 and 2. In attempting to pass my hands over the spleen, I found it adherent to the abdominal wall and to the diaphragm so as to completely shut it off from the hand without breaking up the adhesions. The rest of the abdomen was an open space. The liver, colon and omentum was free, the appendix seemed a little large and another incision was made for its removal. It was covered with tubercles like other peritoneal surfaces, but it did not seem to be diseased or obstructed inside. After the removal of the appendix two drachms of iodoform was carefully spread about

the peritoneum and the upper wound was closed. A large iodoform gauze drain was put in the lower wound. The patient was put to bed in good condition and did well. All the gauze was removed by the end of the third week and the patient left the hospital well. He has since been under observation and the ascites has not returned. He has gained flesh and strength and seems perfectly well. A little tubercular granulation tissue still clings to both wounds.

#### CASE II.

Mrs. R., thirty-five years old, had a good family history, was married but never had any children. She was thin and had been troubled with colds and dyspepsia for years. Menstruation had been regular until one year ago when she thought she must be pregnant as the courses disappeared and the abdomen grew large rapidly. She had morning sickness and abdominal pains. After three months of suspense she consulted a physician, who diagnosed a tumor probably of the right ovary or tube and recommended consultation. The consultant found a large tumor of unknown origin, cystic and multilocular and recommended operation. In the course of three months this tumor disappeared with diarrhoea for a week. Since that time constipation had been the rule with great though indistinct abdominal pain. A large round solid tumor could now be felt in the umbilical region. It was sufficiently kidney-shaped to resemble a greatly enlarged kidney, probably sarcoma, and a second consultant made that diagnosis and recommended operation.

The constipation increased, the pain on taking enemas became unbearable and at last as no movement could be secured for several days, tympanitis came on with vomiting and collapse, in which condition I was called to operate for obstruction of the bowels.

When examined at this time the patient was in a cold sweat, pulse 160, temperature 102° F. in the rectum with

rapid respiration. The abdomen was distended to the extreme and tympanitic. The case was so desperate that no exact diagnosis could be made and the most unfavorable prognosis was given to the family.

An anæsthetic was given and laparotomy begun. The first evidence of the disease came when the median incision disclosed a large cheesy tubercular nodule, nearly an inch in diameter, just under what seemed to be the peritoneum. After this nodule was removed the next effort to find a peritoneal cavity opened a greatly distended intestine. This let out some of the tympanites. The hole was closed in the gut, and the dissection continued. The kidney-shaped tumor was found to be a wad of omentum covered with miliary tubercles. A few small peritoneal cavities were found, but the intestines, the wall of the abdomen and the peritoneal surfaces of the abdominal organs were closely bound together. In the search for peritoneum three other perforations of the intestine were made with great relief of the tympanites and facilitation of the search. The hand was passed over a part of the adherent surface of the liver and down into the pelvis and over toward the kidneys. The bleeding was considerable. After these dissections had been made four drachms of iodoform were scattered into the deeper corners of the artificial cavity made, and a large iodoform tamponade drainage put in, but little chloroform had been used and the patient came to rapidly and made a rapid and uninterrupted recovery. A tubercular sinus remained in the site of the drain for about three months in spite of numerous curettings. All the sutures of the intestines closed at once. The cramps and abdominal pains disappeared and the patient gained in weight and strength and has remained now, four years, in good health, having no need of a physician.

## CASE III.

John A., eight years old had been sick all summer with attacks of diarrhœa. He was a thin but well grown child with no enlarged lymph glands and no deformity of the chest. In the abdomen could be felt a large cystic tumor filling the whole right side of the abdomen from the liver to the pelvis. A diagnosis of cystic kidney was made and operation undertaken. An exploratory incision was made in the abdomen, when, with a gush of bloody fluid, the tumor disappeared and the intestines presented themselves covered with innumerable miliary tubercles. The abdominal cavity was carefully explored and all the other organs and the abdominal wall found rough with tubercles. The cavity was washed out with sterilized water and the abdomen completely closed with silk sutures. After ten days these sutures were removed and the abdomen strapped. There seemed at this time to be some accumulation of fluid. During the next week the little fellow tore open his abdominal wound. When I saw him a short time afterward, three inches of distended intestine protruded out of the wound. It showed only faint traces of tubercles although it was blue and smooth from distention. It was washed with sublimate and carefully pushed back with iodoform gauze, which was then packed as a tamponade drain (Miculicz). The wound was again united with silk sutures and the abdomen strapped. The boy is now fourteen years old and perfectly sound, full size and strong. There is a small scar and a slight tendency to hernia where the incision was made.

## CASE IV.

Miss J., twenty-three years old, a typewriter for six years in a large, light and well ventilated office, had sharp attacks of abdominal pain for three years. During the greater part of last winter she came home from her work too weary to eat and had formed a habit of throwing herself down and sleeping immediately after her supper. She had not menstru-



ated for four months. She had lost flesh and the pain in the right inguinal region had become almost constant. Her family seemed to be a healthy one ; but her father died of quick consumption, which was precipitated by his occupation, which was one of the most dangerous kind. On examination, the patient was found under weight, weak, anemic, but with no evidence of disease in head, neck, thorax or extremities. The temperature was 101° F. at night and the pulse 120. A vaginal examination was not made, but the uterus was found of normal size and in its normal position by rectal touch. The abdomen was not distended. The kidneys, spleen, and liver presented their normal areas of dullness. The abdomen was apparently tender all over, but especially about the appendix. A diagnosis was made of appendicitis and operation undertaken. After the usual preparation and chloroform anaesthesia the appendix was approached by an incision along the border of the right rectus abdominalis. No fluid escaped, but the intestine presenting itself was covered with innumerable miliary tubercles. The appendix itself had about a hundred grey tubercles upon it. It was removed. The hand found the parietal peritoneum covered with these tubercles and the uterus was rough with them. Both tubes were thickened and hard, and I was tempted to remove them. Slight adhesions were found everywhere between the intestines, omentum and other peritoneal surfaces. The whole cavity was swabbed out with iodoform gauze, covered with three drachms of powdered iodoform. In the incision through which the appendix had been removed a Miculicz drain of iodoform gauze was placed reaching into the pelvis. During the next three or four days the drainage was enormous, but the patient felt well and ate well. She never had any more pain. Menstruation returned on the second month and she has been doing her regular work during the past year.

## CASE V.

In one case only of tubercular peritonitis has the result been unfavorable. In this case intestinal obstruction came on slowly in a young girl. The operation was undertaken to relieve the obstruction. A dry tubercular peritonitis was found. The adhesions were firm. The patient collapsed before the adhesions could be broken up and she died practically on the table.

It is difficult to decide on the origin of tubercular peritonitis in any given case. Cases are reported in which the disease seemed to begin as a tubercular appendicitis, others where it seemed to be a tubercular disease of the tubes, and others where the primary focus seemed to be in the mesenteric glands. In any case the transportation of the bacilli in large quantities from some distant or near focus to the peritoneal cavity must be accounted for. It is remarkable how many cases of tubercular peritonitis resist every effort to discover the primary focus. It is not likely that the blood streams carry the disease to the peritoneum alone (Weigert) but the peritoneum is infected through the discharge directly into it of a cheesy or suppurating focus such as a degenerated mesenteric lymph-gland, a tubercular appendix or tube, or a tubercular infarct in the liver, spleen or omentum : or indirectly through the flooding of the peritoneal cavity with bacilli through the lymph channels from a more distant focus, such as a tubercular intestinal ulcer, a tuberculosis of the supra renal capsule, a tubercular pleuritis, or a tubercular pericarditis.

Borschke in his 226 cases of tubercular peritonitis found the disease alone in two cases: with pleuritis and pericarditis in one case; with pleuritis alone in one case; with tuberculosis of the lungs but no tuberculosis of any other abdominal organ besides the peritoneum, in five cases. The diagnosis of tubercular peritonitis depends ultimately upon the recognition of the grey tubercles upon the peritoneum and the demonstration of the tubercle bacilli in them or in the exudate. The recognition of the tubercles can be counted a safe and positive diagnosis. Failure to find the bacilli in the exudate is to be expected in most cases in the hands of the ordinary pathologist. The clinical diagnosis is not easy in cases in which there are no signs of disease elsewhere. The best that can be done is to make a presumptive diagnosis after the disease has gone on to effusion. Aspiration should never be made on account of the danger of perforating a paralyzed intestine. The onset is slow and insidious, rarely are there any exciting causes that can account for the onset of the tuberculosis. The symptoms are general and indistinct. The patient has usually lost strength, weight and appetite for several months, and when observed is usually pale and emaciated. If a woman the menstruation has usually been absent for several months and perhaps irregular for a longer period. There is usually abdominal pain indistinct and fluctuating, though sometimes severe and constant for a long time. The umbili-

cal and pelvic regions are frequently the localities of these pains. Tenderness is often present also, and sometimes a tumor, solid, fluctuating or doughy may be found in the pelvis or abdomen. Ascites general or localized comes on later. The abdomen is often distended and tympanic or filled with easily recognized ascites. Diarrhœa is sometimes an early and troublesome symptom, though constipation is the rule. Sometimes actual or partial obstruction of the bowels takes place and makes relief imperative.

The evening temperature is usually high 102°F. to 104°F. and the pulse and respiration rapid 130-140 and 20-35 respectively. In some cases these disturbances are not present. The difference between the rectal and axillary temperature has been spoken of by many observers.

The veins of the abdomen are often enlarged, especially in children and there are sometimes night sweating. When the pain is severe the legs are drawn up and on the abdomen as in acute peritonitis, but this is a rare symptom. The constipation, cramps and the rare disturbances of urination are due to the adhesions or dry peritonitis. Absolute obstruction\* for three weeks has been reported with recovery and later a diagnosis at autopsy. Rarely in case of sudden death tubercular peritonitis has been found at the autopsy.† Tubercular peritonitis is a part of acute miliary

\* Taylor, F. *International clinics*, Vol. 2, 1892, p. 68.

† Liamarantine, *La Loire Medicale*, Sept. 15, 1889.

ated for four months. She had lost flesh and the pain in the right inguinal region had become almost constant. Her family seemed to be a healthy one : but her father died of quick consumption, which was precipitated by his occupation, which was one of the most dangerous kind. On examination, the patient was found under weight, weak, anæmic, but with no evidence of disease in head, neck, thorax or extremities. The temperature was 101° F. at night and the pulse 120. A vaginal examination was not made, but the uterus was found of normal size and in its normal position by rectal touch. The abdomen was not distended. The kidneys, spleen, and liver presented their normal areas of dullness. The abdomen was apparently tender all over, but especially about the appendix. A diagnosis was made of appendicitis and operation undertaken. After the usual preparation and chloroform anæsthesia the appendix was approached by an incision along the border of the right rectus abdominalis. No fluid escaped, but the intestine presenting itself was covered with innumerable miliary tubercles. The appendix itself had about a hundred grey tubercles upon it. It was removed. The hand found the parietal peritoneum covered with these tubercles and the uterus was rough with them. Both tubes were thickened and hard, and I was tempted to remove them. Slight adhesions were found everywhere between the intestines, omentum and other peritoneal surfaces. The whole cavity was swabbed out with iodoform gauze, covered with three drachms of powdered iodoform. In the incision through which the appendix had been removed a Miculiez drain of iodoform gauze was placed reaching into the pelvis. During the next three or four days the drainage was enormous, but the patient felt well and ate well. She never had any more pain. Menstruation returned on the second month and she has been doing her regular work during the past year

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In one case only of tubercular peritonitis has the result been unfavorable. In this case intestinal obstruction came on slowly in a young girl. The operation was undertaken to relieve the obstruction. A dry tubercular peritonitis was found. The adhesions were firm. The patient collapsed before the adhesions could be broken up and she died practically on the table.

It is difficult to decide on the origin of tubercular peritonitis in any given case. Cases are reported in which the disease seemed to begin as a tubercular appendicitis, others where it seemed to be a tubercular disease of the tubes, and others where the primary focus seemed to be in the mesenteric glands. In any case the transportation of the bacilli in large quantities from some distant or near focus to the peritoneal cavity must be accounted for. It is remarkable how many cases of tubercular peritonitis resist every effort to discover the primary focus. It is not likely that the blood streams carry the disease to the peritoneum alone (Weigert) but the peritoneum is infected through the discharge directly into it of a cheesy or suppurating focus such as a degenerated mesenteric lymph-gland, a tubercular appendix or tube, or a tubercular infarct in the liver, spleen or omentum : or indirectly through the flooding of the peritoneal cavity with bacilli through the lymph channels from a more distant focus, such as a tubercular intestinal ulcer, a tuberculosis of the supra renal capsule, a tubercular pleuritis, or a tubercular pericarditis.

Borschke in his 226 cases of tubercular peritonitis found the disease alone in two cases; with pleuritis and pericarditis in one case; with pleuritis alone in one case; with tuberculosis of the lungs but no tuberculosis of any other abdominal organ besides the peritoneum, in five cases. The diagnosis of tubercular peritonitis depends ultimately upon the recognition of the grey tubercles upon the peritoneum and the demonstration of the tubercle bacilli in them or in the exudate. The recognition of the tubercles can be counted a safe and positive diagnosis. Failure to find the bacilli in the exudate is to be expected in most cases in the hands of the ordinary pathologist. The clinical diagnosis is not easy in cases in which there are no signs of disease elsewhere. The best that can be done is to make a presumptive diagnosis after the disease has gone on to effusion. Aspiration should never be made on account of the danger of perforating a paralyzed intestine. The onset is slow and insidious, rarely are there any exciting causes that can account for the onset of the tuberculosis. The symptoms are general and indistinct. The patient has usually lost strength, weight and appetite for several months, and when observed is usually pale and emaciated. If a woman the menstruation has usually been absent for several months and perhaps irregular for a longer period. There is usually abdominal pain indistinct and fluctuating, though sometimes severe and constant for a long time. The umbili-

cal and pelvic regions are frequently the localities of these pains. Tenderness is often present also, and sometimes a tumor, solid, fluctuating or doughy may be found in the pelvis or abdomen. Ascites general or localized comes on later. The abdomen is often distended and tympanic or filled with easily recognized ascites. Diarrhœa is sometimes an early and troublesome symptom, though constipation is the rule. Sometimes actual or partial obstruction of the bowels takes place and makes relief imperative.

The evening temperature is usually high 102°F. to 104°F. and the pulse and respiration rapid 130-140 and 20-35 respectively. In some cases these disturbances are not present. The difference between the rectal and axillary temperature has been spoken of by many observers.

The veins of the abdomen are often enlarged, especially in children and there are sometimes night sweating. When the pain is severe the legs are drawn up and on the abdomen as in acute peritonitis, but this is a rare symptom. The constipation, cramps and the rare disturbances of urination are due to the adhesions or dry peritonitis. Absolute obstruction\* for three weeks has been reported with recovery and later a diagnosis at autopsy. Rarely in case of sudden death tubercular peritonitis has been found at the autopsy.† Tubercular peritonitis is a part of acute miliary

\* Taylor, F. *International clinics*, Vol. 2, 1892, p. 68.

† Liamarantine, *La Loire Medicale*, Sept. 15, 1889.



tuberculosis and of general tuberculosis, but such cases are not considered here. From this it will appear that an absolute or even relatively positive diagnosis of tubercular peritonitis cannot be made before the abdomen is opened. When some of the fluid is withdrawn from the abdomen, a procedure which cannot be recommended even when the ascites is extensive, and it is examined for bacilli, they are rarely found. The blood corpuscles in the exudate are significant, however. So careful a diagnostician as Carl Beck\* of New York says that he has never been able to make a diagnosis of tubercular peritonitis before operation. I have myself operated and discovered this disease many times but have made the diagnosis only twice before operation.

All our knowledge of the repair of tubercular peritonitis after laparotomy is empirical except a few scattered and not very satisfactory experiments. Clinicians first discovered the value of laparotomy through operations undertaken with a mistaken diagnosis. Nannotti and Baciocchi† have made some interesting experiments on animals. Tubercular peritonitis was produced in animals by injecting tubercle bacilli into the peritoneal cavity. In rabbits this produced a fatal tuberculosis in seven to nine weeks, in dogs in eleven to thirteen weeks. Only a single dog recovered from the

injection spontaneously. In eleven days the abdomen was opened and then closed after the peritonitis had become well established, and seven recovered, two were benefited, two were unimproved. In rabbits death was not averted by laparotomy but the tubercles became in many places degenerated and the condition of the animal improved.

The process of recovery was found to consist in granular degeneration of the tubercles, diminution of their virulence and phagocytosis by epithelial cells, degeneration of the peritubercular cells, invasion of new formed blood vessels and connective tissue into the tubercle, through which it is absorbed and repaired through cicatricial contraction. Through this process the peritoneum sometimes presents almost a normal appearance, in other cases sears and adhesions remain. So it would seem that the destruction of the tuberculosis by laparotomy is due to an increased phagocytosis, the result of the mechanical or, when iodoform or other substances are used, chemical irritation with increased blood and lymph circulation.

Stschégoleff\* experimented with 22 dogs into whose peritoneal cavities he injected pure cultures of tubercle bacilli derived from human tuberculosis. The bacilli were suspended in a sort of emulsion, 12 of the dogs were let alone: they all died; one in eleven days after the injection, one

\* N. Y. Med. Journal, April 21, 1894, p. 489.

† Sugli effetti della laparotomia nelle peritoniti tubercolari, Pisa, 1895.

\*Recherches experimentales sur l'influence de la laparotomie sur la peritonite tuberculeuse. Arch. de med. experimental et d'anatomie pathologique. Tome, 6. p. 650-676.



in sixteen days and the remaining ten in 22-34 days. In all these cases tubercular peritonitis was found at the post mortem. Other organs were also tubercular. The other ten dogs were operated upon 12-15 days after injection, when emaciation had begun to show itself. The abdomen was opened and the tubercular process observed. Six of the dogs died between 16 and 30 days after the laparotomy. Four recovered, three were killed and the retrogressive changes studied. One was still alive and well four months after the operation. The three dogs that had recovered were killed 52, 70 and 85 days after laparotomy respectively. Microscopical investigation as well as macroscopical investigation showed a retrogressive process in the tuberculosis due to cicatricial formation about the tubercles. S. concludes that laparotomy is helpful and curative of tubercular peritonitis only when performed early, before other organs besides the peritoneum are involved.

As to treatment only one thing seems to be effective and that is laparotomy with or without irrigation of the peritoneal cavity, with or without the use of iodoform or other antiseptics. The puncture and injection of the abdomen with iodoform emulsions seems very dangerous and is not often recommended. In 1893, Nolan, Mosetig-Moorhof and Mader reported cases of tubercular peritonitis treated successfully by puncture of the abdomen with a trochar, discharge of the

fluid and insufflation of air. Others think the light destroys the tubercular process.

#### CONCLUSIONS.

1. Tubercular peritonitis is a relatively common disease.

2. It is never a primary disease though it is usually impossible to find the initial focus.

3. Recovery follows laparotomy as a general rule unless there is an initial focus remaining to keep up the disease.

4. This disease appears in three forms, the exudative form, the dry form, and the ulcerating form, and they are recoverable in the order named.

5. Macroscopical examination of the peritoneum is sufficient for a positive diagnosis. The demonstration of microscopical tubercles or the recognition of the bacilli are only confirmatory.

6. Puncture of the abdominal wall for diagnosis or for the removal of ascites and injection of air, fluid or iodoform is dangerous and should not be practiced.

7. Laparotomy with iodoform gauze tamponade drainage is the safest and most reliable treatment.

8. Laparotomy should be done as soon as there is a show of emaciation, or when a relative diagnosis has been made.

9. A positive diagnosis can never be made before laparotomy.

## A CASE OF DIPHTHERIA, USHERED IN BY ECLAMPSIA,— COMPLICATED BY LABOUR AT TERM.

JOHN W. LATIMER,  
GALENA, M. D.

**M**AY 25th, 1891, I was hastily summoned to see Mrs. B., aged 30, healthy brunette, married two years, primigravida near full term, whom I found in second convulsion, face puffed and cyanotic, pulse rapid, full and bounding.

Administered chloroform until attack ceased, then gave hypodermically Morphia gr. ss, Tr. Verat. Viride gtt. 8 drops and applied ice cap to head, remained several hours, and before leaving gave Calomel gr. x., which dose was to be repeated every three hours until three doses were given. Left patient in a semi-conscious, but quiet state, with directions to attend-ant if indications of a return of convulsions, Bromide Potassium to be given every half hour until composed.

26th. Next day found patient perfectly herself, there having been no return of convulsions, temperature normal, pulse 100, urine heavily loaded with albumen, scanty secretion. Free purgation had ensued from the 5 ss of Calomel.

As she was within eight or ten days of full term of pregnancy, I went to work to clear the urine of albumen and open up all the emunctories, which treatment was plainly indicated by the jaundiced skin and general œdematous appearance, foul tongue,

etc. Infusion Digitalis with Acetate Potassium in combination, and Mist. Ferri Bashami, were persistently given for three or four days. The urine becoming free of albumen in this time and the general anasarcons state subsiding, only the Basham's Mist. was continued.

Patient was out of bed third day and so much improved that I omitted seeing her after this until 30th, at which date I found her up and about the room, but suffering with her throat, submaxillary glands of both sides of neck enlarged and tender to touch, pharynx painful, an angry red patch including the tonsils and extending above, but no exudation or deposit thereon—temperature 98°, pulse 110.

The pulse from first, I will bear remark, had never been found under 100 per minute.

I looked upon the case as Rheumatic Tonsillitis, and prescribed accordingly. Being very busy I did not visit her again until June 2nd, or third day from last visit. Found patient dressed and sitting in chair. Glands of neck very much swollen, throat very painful and upon approaching her detected a very foul odor, examination revealed the same angry red patch but more diffused or e

towards posterior nasal cavity, but no deposit thereon. The velum palati, was perforated near center by a slough nearly one fourth of an inch in diameter, an acrid, fetid and sero-sanguinolent discharge, issuing therefrom, and the salivary glands secreting abundantly, causing a constant stream of secretion from the mouth, the act of deglutition being too painful to be indulged except for liquid food, temperature 98°, pulse 110, feeble.

Diagnosis; Diphtheria, deposit forming on posterior aspect velum palati. Ordered gargle Hydrarg, Bichloride and Acid Carbolic, stopped Basham's Mist, and anti-rheumatic treatment and substituted Tr. Ferri Chlor. Chlorate Potassium and Quinia Sulph. every hour with stimulants and concentrated liquid food.

June 3rd. Next day, found slough cleaning off nicely, parts taking on less angry appearance. glandular enlargement subsiding some, pain less, temperature 97°, pulse 115.

June 4th. Found marked improvement of condition of throat, parts cleaned off and healing nicely, glandular enlargement almost subsided, temperature 97.5-10°, pulse 110.

June 5th. Omitted case.

June 6th. Summoned to case hurriedly, found patient in labor at term, pains been in progress for six hours, os dilating slowly and very rigid, patient not assisting the pains and very nervous. Administered Morphia and Atrophia hypodermically, and Quinia gr. xx orally. The hypodermic had a very happy effect subjectively

tending up the pillars of fauces and objectively, relaxing the parturient canal and helping the morale of patient. Used a hot 1-2000 bichloride douche vaginally antepartum.

Pains became expulsive and strong, head descended into excavation. Then chloroform was administered during pains, and labor was completed in two hours after my arrival, whole duration as near as I could learn, having been about eight or nine hours of active pain.

\* Child a large female, but unusually pale, though fleshy and vigorous.

The navel was dressed with Iodoform, the oral cavity cleansed, and small doses of Tinet. Ferri. Muriate and Chlorate Potassium given internally. I left my patient after applying an antiseptic napkin, and giving the usual instructions. Temperature normal, pulse 100.

The placenta was delivered by external compression and 3 i Ergotole administered and the diphtheritic treatment continued.

June 7th. The next day was greatly surprised to find temperature 104°, pulse full and bounding 130. Uterus tender upon pressure, lochia rather scanty, acrid and of a serous nature.

Diagnosis, diphtheritic infection at placental site. Used intra-uterine douche  $\frac{1}{4000}$  Bichloride Mercury solution followed by suppository 3 j Iodoform daily, carried high up into uterine cavity, with dressing forceps.

Nurse to use carbolized vaginal douche noon and night.

June 8th. Temperature 104°, pulse 140. lochia very free, serous, acrid and offensive.

Using Sim's Speculum and position, examination revealed rents in the cervix and perineum, these rents also showing diphtheritic deposit, the cervix angry red, and abundant foul smelling ichorous discharge issuing from os.

Condy's fluid, full strength, substituted for Bichloride intra uterine and vaginal douche. Iodoform 3 j in, suppository, intra uterine each morning, after intra uterine douche. Nurse using only vaginal douche noon and night.

The internal medication of Tr. Ferri Muriat. MXX. Quinia gr. i every two hours. Strychnia gr. 1-20 ter die,

and Chlorate Potassium 3 i daily, with concentrated and easily digested food frequently given, and plenty of alcoholic stimulant composed the main treatment.

For two weeks I had a very unpromising case. For one week temperature ranged from 103° to 105°, after this began gradually to decline, and I became hopeful, but mighty tired of a ten miles drive daily, and often repeated in same day, with a general country practice and sickly season then prevailing.

After fifth week my patient gave me no more concern except a subinvolved uterus which subsided under a few intra-uterine applications, glycerine tampons, systemic medications.

Mother and child both did well. Mother becoming stouter than usual.



## TORSION OF THE PEDICLE IN OVARIAN TUMORS.

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CLINICAL LECTURE DELIVERED AT THE TREMONT DISPENSARY, BOSTON.

BY CHARLES GREENE CUMSTON, B.M.S., M.D.,

*Assistant Professor of Surgical Pathology, Tufts' College.*

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GENTLEMEN :—

**V**ARIOUS causes have been attributed to the production of rotation of ovarian tumors on their axis, for the reason that the causes and mechanism of torsion are most difficult to account for in a given case, and it has been impossible to establish an etiology applicable to all cases.

Change in position or sudden movements of the body, abdominal palpation, and pressure on the abdomen, appear to be quite frequent causes in the production of this complication.

Tait admits the influence of alternate distension and emptying of the rectum and mentions nine out of ten cases that have come under his care, in which rotation took place from left to right, that is to say, the anterior aspect of the tumor moved from left to right, while the posterior surface underwent an inverse movement from right to left. This cause he says, certainly acts more on tumors occupying the right side of the abdomen than those on the left, because the former are so situated that the expulsive force of the rectum comes in

the oblique direction and at about right angles with the axis of rotation.

It is to be remarked that in four-fifths of the cases reported by Rokitsansky, the tumor was on the right side and torsion took place from left to right in a still larger proportion. Ségond says that if Tait's theory is to be accepted, torsion of the pedicle should be the rule in the majority of pedunculated tumors of the ovary, which is far from being the case, and he believes with Heurtaux and Quénu, that this theory only merits a limited consideration.

For my part, I think that Freund's theory is probably the correct one. He has demonstrated that during their growth, ovarian tumors undergo changes of position at two different stages. In the first, while they are still in the pelvis, their tendency is to grow downward behind the uterus and to retain their pedicle on their anterior aspect. In the second stage they rise out of the pelvis and tend to fall forward on the abdominal wall and their pedicle is then found on their posterior aspect.



Fischer has recently studied the law formerly taught by Prof. Goodsir, that there is a spirality guiding the growth of all organisms, and he maintains that axial torsion is a function of the living cell. Bilateral symmetric organisms possess on the right side of the body sinistrospral growth-torsions and on the left, dextrospral torsions; and he admits that this is true of ovaries, tubes and broad ligaments. Freund has examined Fischer's investigations as regards the pedicle of ovarian tumors, and concludes, that in all cases in which an ovarian tumor reaches the second stage and has no obstacle to its usual progress there will be found a torsion of its pedicle, to the left in right-sided tumors and to the right in left-sided growths.

This theory is also in accord with the fact that the nature of the tumor in no way influences the production of torsion of the pedicle. It has occurred in every description of ovarian, parovarian and fibroid tumor, the conditions necessary for its production being *perfect mobility* and a *pedicle sufficiently long* to allow of rotation.

It is generally admitted however, that this complication occurs more frequently in dermoids. Fränkel considers as the most frequent predisposing cause of torsion, an unequal and irregular growth in ovarian cysts, which causes a displacement of the centre of gravity of the tumor, resulting in rotation on its axis.

Terrillon operated upon three cases of cysts in which torsion of the

pedicle had occurred and in which he found the tumor displaced itself from one side of the abdomen to the other, and it occurred to him that this displacement is one of the principle causes of torsion. I, myself, have under observation at the present time a maiden lady aged about fifty, who has a small dermoid cyst about the size of a fetal head, which can be pushed easily from the right iliac fossa in which it is usually to be found, to the left. This patient I am watching closely, gentlemen, for the reason that in time torsion or some other complication may occur. The only reason I have not advised operation is that the patient is at present going through the menopause. Operation is decidedly indicated as soon as the phenomena attending this condition have ceased.

Circulatory troubles associated with the menstrual flow have also been noted in the etiology, but up to the present time their importance has not been established in a precise manner. The pregnant uterus, or the co-existence of another abdominal tumor, has quite a marked influence in facilitating, or even producing torsion of the pedicle. These are important circumstances, for the displacement of the cyst is, as I have already said, an essential condition for the production of torsion. Labor itself, as you can readily understand, briskly changes the relations of the organs of the pelvis to each other, and will allow an abdominal tumor to move more freely.

Puncture of cyst has been given an important place in the production of

torsion of the pedicle. Malins and Thornton have published several cases in which torsion of the pedicle has occurred after puncture of the tumor. Schroeder relates a very interesting case of atrophy of an ovarian cyst occurring after puncture, and was due to the torsion of its pedicle. He demonstrated this fact when he operated on the patient ten years later, by comparing this atrophied cyst with another cyst developed on the opposite side. The atrophied tumor had a twisted pedicle and was made up of two pockets, one containing a yellowish liquid, the other filled by a mass which might be compared to mustard. Schroeder's patient, who found her cyst atrophied after the puncture, thanks to the torsion of the pedicle, is perhaps a unique exception to the rule. It is necessary when puncture is performed, to put the patient in the best possible condition, in order to avoid this complication, prescribing absolute repose in bed for several days, besides applying a tight bandage to the abdomen composed of a thick layer of cotton, and a flannel bandage to render the parts immovable. In order to be still more prudent and see that the patient shall not move, Terrier passes the binder under the back of the patient before he aspirates.

The predisposing action of certain anatomical characters of the tumor appears less probable than the influence of the several causes I have just reviewed. It is easy to admit that a small tumor is more apt to turn on its pedicle, than a large one.

Out of the 57 cases which make up Thornton's statistics, in 36 the weight of the tumor was less than ten pounds. Schroeder, Hoffmier, Breisky, and Stambourg have, however, seen torsion come about in cases of very large tumors

The length and the smallness of the pedicle is also an important factor which has often been noted. In a case reported by Tedenat there was a proliferating papillary cyst in each ovary. Both of these cysts, each of which was the size of a foetal head at term, was provided with a long thin pedicle. The patient had twice had quite serious peritoneal symptoms, and Tedenat operated at the end of the third attack. The pedicle of the cyst on the right was twice turned on itself, and the tumor was pushed forward and to the left of the pedicle of the left cyst. Both cysts were adherent to each other and the cyst on the right, with a twisted pedicle, contained blood and presented patches of necrosis. In spite of the numerous adhesions with the small intestine and the mesentery, which necessitated the use of some ten ligatures, the patient made a rapid recovery. The same surgeon has operated four times for cysts of both ovaries all of which were papillary, and in spite of the length of the pedicle in all four cases he has not seen torsion occur in any of them. In the fifth case of papillary cysts of both ovaries coincident with a large myoma of the uterus, the pedicle on the right side had undergone torsion of two-thirds of its circumference. The tumor which was

the size of an adult head was distended by sera-sanguineous liquid.

Imbert has published a most interesting case from an etiological point of view of torsion of the pedicle. This was a cyst developed below the tube and on the inner side of the ovary. The ovarian ligament had contracted adhesions with the tumor, which were so intimate that they could hardly be distinguished from it. On either side the ligament, which was adherent to the ovary, was by this same fact, adherent to the pelvic walls to which the ovary was united by fibrous adhesions of considerable firmness. The ovarian ligament did not follow by a progressive lengthening in relation to the increase of size in the cyst, and was consequently drawn over the tube, and by this situation of affairs its action had a tendency to bring the anterior aspect behind and outward; that is to say, it drew the cyst in the direction in which rotation was produced. This influence was not the only one, we can easily admit, but the ligament of the ovary had necessarily exercised an influence on the direction of the rotation.

Tedenat, who has performed 261 laparotomies for ovarian tumors gives the following table :—10 were solid tumors, 15 were tumors included in the broad ligament, 17 were dermoid cysts, 20 were papillary cysts, 6 cases had bilateral cysts, and 199 cases were proliferating glandular cysts. Out of this number 12 cases presented torsion of the pedicle, but it is probable that torsion was present in other cases but not noted at the time

of operation.

I will just mention a few more authors to show the frequency of torsion in ovarian cysts. Rokitsansky found 13.7 per cent; Schröder found 13.9 per cent; Thornton 8.5 per cent; Howitz 23.2 per cent; Olshausen 6.5 per cent; Péan 6.1 per cent; Terillon 6 per cent; Tedenat 4.6 per cent.

Antisepsis has considerably diminished the danger of laparotomy, and the idea which formerly occupied the public mind against operation is now done away with, and patients with cysts accept operation early when it is offered, consequently cases of torsion are greatly reduced.

The pedicle of an ovarian cyst is the attachment which connects the tumor with the rest of the organism and which serves, certainly, at least, during the first part of its evolution, as a means of fixation and nutrition. It is generally made up of a part of the broad ligament, of the ovarian ligament, and quite generally the tube, a part of which usually is in connection with the superficial part of the tumor. Sometimes the tube is united to the cyst by fibrous ligaments.

The narrowest point of the pedicle is usually at that part that is called the infundibulo-pelvic ligament, which is nothing more than a fold of the peritoneum, extending from the pelvic wall to the ovary by which the vessels reach the organ.

The vessels of the pedicle are extremely large, the arteries being furnished by the utero-ovarian and also

by anastomoses with the uterine artery when the cyst becomes adherent to the uterus. The arteries of the pedicle occupy the same relation between themselves as the arteries from which they come. On the internal border these are branches of the uterine artery, on the external border those of the utero-ovarian artery. The number and calibre of the vessels vary with the size of the pedicle. If you have a long thin pedicle the arteries are few and small. The opposite condition of affairs is found in broad short pedicles. The veins are larger than the arteries and parallel with them; they are made up of thick and very muscular walls and for this reason, gentlemen, you must not take them for arteries, a mistake which may easily occur on the operating table. In certain places the veins may be confounded with the tissues which surround them. I cannot give you any better idea of the appearance than to call to your mind the *dura mater*. The lymphatics are extremely numerous on the walls and continue directly with those of the broad ligament.

The existence of nerves in the pedicle is admitted by Heger and Kaltentbach in all cases, and Schroeder found a trunk the size of the ulnar nerve. On the other hand, I would say that Vercontre denies the presence of nerves in the pedicle. All the elements of the pedicle are united by connective tissue and sometimes by unstriped muscular fibers, the whole being covered by peritoneum.

Nussbaum, Spencer Wells and

Worth have described double pedicles and according to Heger and Kaltentbach this condition is due to a splitting up of the distended broad ligament between the ovarian ligament and the tube, or between its two wings and the infundibulo-pelvic ligament.

Astruc mentions a case of cyst with a double pedicle and thinks that it resulted from intimate adhesions between two cysts, one in the right ovary and the other in the left. The right ovarian cyst, which was the size of two fists, contained a bunch of hair and two teeth; the left was a glandular proliferating cyst the size of the adult head. The latter had a pedicle 5 cm. long and 3 cm. in breadth. The dermoid cyst had a pedicle 10 cm. long and about the size of the finger. It appeared distended and was exceedingly poorly nourished. The patient recovered. The same author mentions the case of a woman, 37 years old, with a large par-ovarian cyst containing intra- and extra-cystic papillary vegetations which adhered to the uterus. The left ovary, which was in a condition of micro-cystic degeneration, was the size of a small orange and adhered solidly to the cyst on the right, and presented a slight torsion of its pedicle.

The pedicle may be twisted slowly or suddenly, and the number of turns may be from half up to five or six. The usual number is about two or three. As you might imagine the gravity of the symptoms produced by torsion is not always in relation with



the number of twists of the pedicle. A half turn and a band or adhesion may produce strangulation and necrosis of the cyst.

Torsion is usually accomplished from without inwards. By this I mean, gentlemen, the anterior aspect of the tumor becomes external, posterior, and internal successively in order to accomplish complete rotation. Spencer Wells has observed rotation occurring from within outwards; from without inwards, and even oblique rotations from forwards backwards. Olshausen was one of the first to draw attention to the possibility of rotation in the opposite sense, of cystic tumors of the ovary which had undergone torsion of the pedicle. Many other authors have mentioned the same facts.

It now remains, gentlemen, for me to consider the phenomena following torsion. Now as to the vascular condition, slow torsion naturally produces a hindrance to the circulation while a sudden torsion arrests circulation. The effects of the hindered circulation produced by a slow torsion of the pedicle are similar to those which would be produced by a ligature placed on the pedicle. If this ligature is not very tight, the circulation is simply hindered in the veins and the vascular pressure is increased in the arteries. This is exactly what happens in the circulatory system of the cyst, from which follows a sanguinous infiltration in the walls of the tumor and its pedicle.

An œdema of the pedicle may occur and of the tumor as well, caused

by a serous transudation which swells the walls and is extremely favorable to the productions of adhesions. If the constriction occurs in a very slowly progressive manner the nutrition is diminished and the cyst may undergo a decided fatty or calcareous degeneration.

Breisky mentions a case of this degeneration which he found in a most marked degree. He made the diagnosis of ovarian cyst reaching above the umbilicus. After a very painful attack he found an increase in the size of the tumor and shortly after a diminution in its size; nine months after the tumor was only the size of a child's head; six years later it was only the size of a hen's egg.

But, gentlemen, unfortunately, this case is an exception, and the general rule is that adhesions form between the cyst and neighboring organs or the abdominal wall, and these adhesions are very vascular and aid considerably in the nutrition of the cyst. Now if we suppose that a ligature is tightly tied on the pedicle, which corresponds to a sudden torsion, this is what happens to the pedicle and tumor: the veins, which are superficial and are less resistant than the arteries on account of their structure, are compressed; the latter, no matter how sudden the torsion may be, allow blood to flow through them for a certain time; consequently the rapid increase of the tumor at this time is easily understood. The return circulation is cut off while the arterial blood goes in under high pressure, the veins become distended

until their walls, which are too weak to resist the pressure, allow the liquid blood to escape either into the interior of the cyst or in its walls, thus forming an enormous extravasation. In other cases the blood may escape directly into the peritoneal cavity and then we have to deal with internal hæmorrhage.

Spencer Wells mentions several examples of serious and rapid hæmorrhage occasioned by this mechanism; but I would add that hæmorrhage rarely takes place into the abdominal cavity. It is more often in the cavity of the cyst or in its walls that the blood collects. The arteries in turn are compressed by the rapid torsion and by strangulation of the pedicle, and the line of limitation will be found to be of a greyish color, or rather the hue of a dead leaf, which as you know, is the characteristic aspect of gangrene. The pedicle may even become completely separated, but this is not very frequent.

When the constriction has not been sufficient to produce necrosis there is always a great friability of the tissues, and this is extremely important to remember. Péan says that in all cases in which torsion of the pedicle has occurred, this latter is small and friable, so that when the tumor is removed it is necessary to take extra care in order that it may not be torn away; and to prevent this, grooved hæmostatic clamps should be applied, as preventive hæmostasis, and the ligature should not be tightened too suddenly because

it may cut through the pedicle. To this friability of the pedicle may be attributed the case reported by Malins, in which an external examination was sufficient to separate the tumor from its attachment.

But whether the pedicle be separated or twisted on itself so that the circulation is completely interrupted, the destiny of the cyst is quite variable. According to Terillon they become gangrenous in the parts which are least supplied with vessels or where nutrition is the least active. Others have been observed having numerous adhesions containing large vessels, and were even nourished more abundantly than they would be by their pedicle. They increase in size and continue a normal physiological life as they had before torsion or before separation from their original pedicle had occurred. Others remain stationary in size or very nearly so, while some grow more or less for a certain time and then stop increasing in size.

When, after torsion, the arrival of nutritive material is, or becomes insufficient, the cyst may shrink up and its contents be absorbed little by little as in the case of Breisky, that I have already mentioned. But whatever their transformation may be, it is to be remembered that every transplanted cyst, if it has a real pedicle, may be the starting point of new accidents produced by torsion or ruptures of its newly formed pedicles.

Torsion of the pedicle usually brings about anatomical changes in

Of course I cannot be absolutely certain of my diagnosis, but taking all the symptoms into consideration I think that in all probability I am correct.

It is generally accepted at the present time that all accidents of torsion of the pedicle in ovarian tumors are a formed indication for the performance of laparotomy, and it is of the greatest interest to find out as exactly as possible the various clinical forms that this condition of affairs may take on. When strangulation is complete, due to sudden torsion, the diagnosis is relatively easy. The accidents are tremendous in their intensity and in their rapidity.

All of a sudden without any appreciable cause, or on account of a sudden movement on the part of the patient, the woman suddenly feels a sensation of displacement low down in the abdomen, or she may say that something tore inside. And these sensations are immediately accompanied by violent pain. This pain, which is in the first place localized in the tumor and more especially over the pedicle, is quite similar to hepatic or nephritic colic or the pain of chronic appendicitis, as I pointed out in the case already mentioned; it shoots towards the lumbar region of the same side as well as into the same thigh, and soon becomes generalized over the entire abdomen. The general symptoms of extreme violence appear soon after. The patient experiences an indescribable malaise, mucus, bilious, or even fecaloid

vomiting occurs, and this may happen even if the intestine is not included in the torsion. Respiration, which is rendered quick on account of the pain experienced in the diaphragm takes on the upper costal type. The pulse increase and may reach 110 pulsations or even more. It is small and filiform. The tumor usually remains normal, although in some cases, when gangrene has taken place, it will rise. The facies changes and the skin is covered with cold perspiration. The tumor will be found to have greatly increased in tension and volume and to have become immovably fixed.

Mouls mentioned for the first time in 1890 two very important symptoms which he discovered in two patients, namely:—*systolic murmur heard with the stethoscope over the pedicle and an undulation "en masse" of the tumor, synchronous with the arterial pulsation.* In the same year Raboul found in three cases two signs which permitted him, particularly in the last, to make an exact diagnosis before he operated. These signs were a murmur, very distinct and systolic, which was found over the painful point, that is, over the pedicle of the cyst, and the movement "en masse" of the tumor, giving to the hand the sensation of a rising up or an undulation which was co-incident with the arterial pulsation.

The very serious symptoms that I have mentioned are not due to peritonitis for the simple reason that it does not as yet exist. They are due

to the torsion and this is how we can explain them: it is known that the slightest irritation of the abdominal organs which are tributaries to the solar plexus may provoke very severe general symptoms of a reflexed nature, while deep lesions of these same tissues, which have a slow evolution, pass sometimes without being discovered.

Now, gentlemen, the ovary receives nerve fibres from the solar plexus and the irritation of its branches contained in the pedicle of the cyst sufficiently explains the phenomena observed. For that matter similar symptoms have been noticed following ovariectomy, hysterectomy and operations performed on the internal genital organs of woman.

There is another serious danger from torsion of the pedicle which may occur in the most precocious manner. I refer to hæmorrhage. This may be so severe as to be mortal. Both Spencer Wells and Patriban have reported cases of death from hæmorrhage. The latter author's case died four hours after the beginning of symptoms.

The symptoms of internal hæmorrhage are, as you know, paleness of the integument and lowering of the temperature of the body, especially of the extremities, a small irregular filiform pulse and soon convulsions, and finally syncope. When the walls of the cyst are not torn under the force of the blood pressure they dilate and a symptom which is easily discovered is the *considerable increase in the size of the tumor*.

Hæmorrhage, as I have said, may sometimes cause death. In other cases it may simply produce a most severe anæmia accompanied by a few abdominal symptoms. When torsion of the pedicle has produced complete constriction of the arteries and veins the danger of hæmorrhage is much less because in this case the cyst is deprived of its nutrition, and gangrene, another serious complication, may occur. From this gangrene, an auto-infection produces a kind of septicæmia which is followed usually by death, if the patient is not relieved by operation.

Lawson Tait has reported three cases who had torsion of the pedicle with gangrene of the cyst. All were operated on with successful results. One of them was pregnant, and on account of a very rapid development of the abdomen, it was supposed that some abnormality was occurring in the ovum. Acute abdominal pains followed by general malaise decided Tait to operate. A par-ovarian cyst on the right side was found with the pedicle twisted three times on itself. The tumor was gangrenous. And what is more remarkable, the pregnancy went on to term without accident after operation. Many other surgeons have had similar cases, and all are of the opinion that operation should be performed at once, as soon as diagnosis is arrived at.

But, gentlemen, it often happens that patients who have cysts of the ovary and who have presented symptoms of torsion, suddenly notice that their tumor diminishes considerably



in size or even disappears. This is due to rupture of the cyst, and acute peritonitis is generally the result. In other cases all these symptoms which appear to menace the life of the patient for several days, diminish in intensity little by little, and patients enter into the chronic stage of their disease and soon symptoms of localized peritonitis appear.

Adhesions form between the tumor and neighboring organs, (intestine, mesentery, and abdominal wall). If the blood supply is insufficient, the cyst may undergo fatty or calcareous degeneration, but if the nutrition is sufficient, after a certain time remaining in a stationary condition, the tumor will commence to increase in size.

These patients are continually tormented by pains in the abdomen which render them quite unable to perform their duties, and they are often obliged to keep their bed. Edema and emaciation occur and the patient presents a typical cachectic condition. The skin is a dirty yellow, and if care is not taken, diagnosis of malignant tumor might be easily made.

Ascites may occur at this period, and is a bad symptom for the patient.

The diagnosis of torsion of the pedicle in ovarian cysts is always easier when you are already aware that your patient has a cyst, because you will immediately think of the complication, if your patient experiences a sensation of displacement of the tumor, or of violent pain followed

by vomiting after a fall, a sudden movement, or after natural labor. If, after careful examination, you find the tumor is immovable and that it has rapidly increased in size and presents an extreme degree of tension, you will be perfectly correct if you make a diagnosis of torsion of the pedicle.

But, now, as all cases that you will meet are not typical, you must remember other means by which you can assure yourself of your diagnosis. You should listen for a systolic murmur over the pedicle and note the undulation "en masse" of the tumor corresponding to the systole of the heart.

Exploratory puncture of the cyst may be performed with all rigorous antiseptic precautions, but remember that a purulent or bloody liquid is a common symptom to many abdominal tumors, consequently this operation will only be of diagnostic value if you draw off a *chocolate colored liquid having a gangrenous odor*. This is a pathognomonic sign, because gangrene of an ovarian tumor can hardly ever occur unless there is torsion of its pedicle.

Torsion must not be confounded with rupture. In the first instance the size of the tumor increases, while in the second it diminishes. The sudden appearance of acute peritonitis is the usual fatal consequence of rupture.

Strangulation of the pedicle by fibrous bands is impossible to be differentiated from torsion. As to separation of the pedicle it is shown by



a more or less considerable mobility subordinated to the number of adhesions.

If the clinical symptoms which characterize sudden torsion are attenuated you will then be in the presence of a case of slow torsion.

Where the diagnosis becomes extremely difficult is when you are called to a case and are without the knowledge that a tumor is present in the pelvis. The patient may also be ignorant of this fact, consequently the torsion is the first indication of the presence of an ovarian cyst. To make your diagnosis you must proceed by exclusion, to eliminate all causes capable of producing this same accident, especially intestinal occlusion and peri-uterine hæmatocele. This differential diagnosis should also be made when symptoms of torsion of an already known cyst are not very marked.

Internal strangulation produces, as does torsion, a sudden violent pain with mucus vomiting, but the considerable swelling of the abdomen, the frequency of the vomiting which later becomes fecaloid, the absolute constipation, and the absence of gas passed by the rectum will allow you to make the diagnosis of internal strangulation.

The torsion of a cyst in the pelvis occurring at the time of the menses has in the first place the same symptoms as a peri-uterine hæmatocele, namely, sharp sudden pain with a tendency to syncope, small filiform pulse, etc., but the tumor formed by the hæmatocele can hardly ever be limited as it can be in the case of an

ovarian cyst. Its consistency is elastic and in some cases fluctuant. Then after three weeks or so it becomes compact and hard to the touch. These indications sometimes will allow you to make out the cause of the accident.

If the cyst has ruptured and hæmorrhage has occurred, it is almost impossible to make a correct diagnosis. For that matter, gentlemen, there are many difficulties in establishing a precise and correct diagnosis. The examination of the patient is often impossible on account of extreme pain in the abdomen which is greatly increased by the slightest touch, and consequently exploratory incision is decidedly indicated to make a diagnosis, and operation is necessary in order to save the patient from these serious and rapidly mortal complications.

As to the diagnosis of these cases you will readily see how variable this may be if you recollect what I have already said. According to Terrillon four varieties of case may be differentiated. The first class are those in which torsion has occurred so slowly that it has given no symptom, in which case this torsion will be eventually favorable. It is an obstacle to the nutrition of the cyst which decreases in size and sometimes undergoes fatty or calcareous degeneration, resulting in a cure by atrophy.

The second class are those in which torsion has produced slight symptoms. The patient has felt some pain due to tympanism, but the tumor has been seen to follow a retrogression as in the first class.

The third class are those in which serious symptoms occur at the beginning, which last only for a short time and decrease afterwards. The prognosis is worse in this class. The alarming symptoms grow less and less, but soon the symptoms of localized peritonitis around the tumor occur. Adhesions form which are often extremely vascular and which will cause great difficulty later when the time comes to operate on the patient. The walls of the cyst and the pedicle undergo atrophy which as you easily see, increases the chances of danger for the patient.

The fourth class is that in which there is rapid strangulation accompanied by symptoms of acute peritonitis. Death is so rapid sometimes that you will not have time to operate. It may be the result of hæmorrhage and acute anemia. Rupture of the cyst is more frequent in these cases and this is followed by acute peritonitis and septicæmia. The tumor may become gangrenous and the patient die in extreme cachexia. Intestinal occlusion may also occur which renders the prognosis still worse.

Pregnancy of the puerperal condition are unfortunate circumstances, because out of nine patients operated in these conditions, either before or after labor, there were three deaths and six successful results in the hands of Koberle.

As to the treatment, gentlemen, the only one that is rational, if the patient presents symptoms of torsion of the pedicle, is abdominal incision. This should be performed as quickly as in

a case of strangulated hernia, and the chances of success are all the greater if the operation is performed early.

Boiffin has reported two cases of torsion of the pedicle, one of which he operated on 60 hours after the beginning of the symptoms with successful results. The other case died ten days after operation. The patient had put off the operation for about six months. To wait exposes to great danger, such as a hæmorrhage, gangrene, rupture of the cyst, and acute peritonitis. If these complications exist, the patient's vital power is lowered by the hæmorrhage and by the pain. But neither of these are contra-indications for performing laparotomy; on the contrary, gentlemen, they should hasten you to perform it. The examples are numerous in which patients had gangrene of their cysts or peritonitis and have recovered after operation, which was the only means of arresting the progress of these secondary accidents.

Pregnancy should not stop you from operating, but you will take the precaution to make the incision as small as you can to avoid evisceration which will certainly occur if the pregnancy is near term, and you should endeavor by minute precautions not to wound the uterus or to cause it to contract by the use of a too hot antiseptic liquid. The temperature after operation will probably not exceed 38° C.

When you have to deal with a slow torsion, although surgical interference is less urgent, it should, nevertheless, be undertaken. The operation will certainly have greater

chance of success if you have not given time for adhesions to form, or if they are recent, you can deal with them with far greater ease than with old or solid ones.

It is useless for me to say with what care you should perform a laparotomy. If the cyst be gangrenous or if, in enucleating it from the iliac fossa you rupture its walls and the contents escape into the abdominal cavity, this should be irrigated with a normal salt solution, using many liters until the liquid runs out *perfectly clear*. The adhesions may require a few hæmostatic clamps on the bleeding points, and certain portions of the peritoneum which have been in contact with the gangrenous portion of the cyst should be wiped dry with iodoform gauze, and a con-

centrated solution of carbolic acid may be rapidly applied. Of course in these cases whether rupture has occurred or not, drainage is advisable.

My favorite operation, posterior vaginal cœliotomy, I cannot advocate in cases of torsion of the pedicle, because the numerous adhesions with which you will have to deal, the situation of the tumor as well as its much increased size would render the vaginal route a bad one.

If, gentlemen, I have dealt at some length on this complication, it is because I felt that you should be fully aware of it, as ovarian cysts are of rather frequent occurrence and you may some day be called upon to attend a patient presenting this complication in which case you must know how to act without hesitation.



## SHORTENING THE ROUND LIGAMENTS; INDICATIONS, TECHNIQUE AND RESULTS.\*

GEORGE M. EDEBOHLS, A.M., M.D.,  
NEW YORK.

**S**HORTENING the round ligaments is the only operation by which the retro-displaced uterus can be brought into normal and physiological anteversion, without establishing always-pathological peritoneal adhesions. All other retroversion operations depend for their success upon more or less extensive, more or less firm peritoneal adhesions.

Shortening the round ligaments, in capable hands, is as safe and as successful as the other retroversion operations.

Shortening the round ligaments is absolutely free from the disturbances and disasters of future pregnancy and parturition which are on record as having followed vaginal and ventral fixation of the uterus, its chief rivals.

Shortening the round ligaments is, therefore, indicated and should be the operation of choice whenever and wherever it will meet the indications as well as, or better than, one of the rival procedures.

Shortening the round ligaments is indicated :—

(a). In all uncomplicated cases

of retroversion and retroflexion of the uterus requiring operative treatment.

(b). In extreme and aggravated cases of antelexion of the uterus.

(c). In cases of retroverted, ante-flexed uteri without adhesions.

(d). In simple prolapse of the ovaries when that condition calls for treatment.

(e). In cases of adherent retro-displaced uteri, with or without adhesions of tubes and ovaries, these organs being otherwise in condition to call for their conservation. The adhesions are first to be severed by colpotomy, median cœliotomy, or an incision through the peritoneum at the internal ring.

Shortening the round ligaments does *not* compare in efficiency with ventral fixation of the uterus as a prolapsus operation.

Shortening the round ligaments should always be immediately preceded by curettage of the uterus. Other operations may be associated according to the indications in the particular case.

The round ligament is never absent. It may, however, after emerging from the internal inguinal ring, run an erratic course to an abnormal

\* Abstract of paper read at Second International Periodical Congress of Gynecology and Obstetrics. Aug. 31 to Sept. 5, 1896.

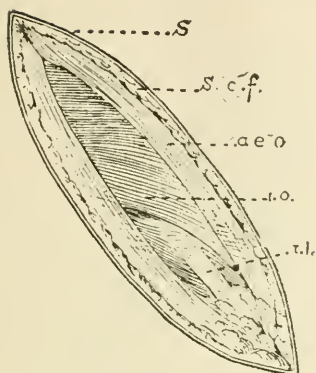


FIGURE 1.

Incision, 5 cm. long, through aponeurosis of external oblique, laying open inguinal canal from external to internal ring and exposing internal oblique muscle and round ligament. The ligament is more or less concealed according to greater or less development of internal oblique. S., skin; s. c. f., subcutaneous fat; a. e. o., aponeurosis of external oblique; i. o., internal oblique; r. l., round ligament.

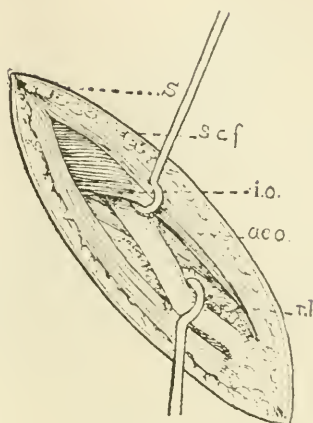


FIGURE 2.

Isolating round ligament from its attachments in inguinal canal. S., skin; s. c. f., subcutaneous fat; i. o., internal oblique; a. e. o., aponeurosis of external oblique; r. l., round ligament.



FIGURE 3.

Drawing round ligament out of abdomen and stripping back investing peritoneum of broad ligament. i. o., internal oblique; s. c. f., subcutaneous fat; P, peritoneum; r. l., round ligament; a. e. o., aponeurosis of external oblique; S, skin.



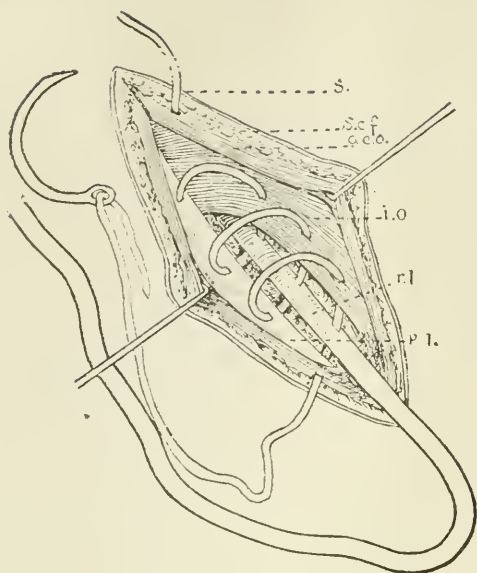


FIGURE 4.

Deep tier of buried running suture of forty-day catgut, embracing internal oblique and transversalis muscles, round ligament and Poupart's ligament. Deep part of uppermost loop of suture (not showing in cut) passes at level of and embraces margins of internal ring. S., skin; s. c. f., subcutaneous fat; a. e. o., aponeurosis of external oblique; i. o., internal oblique; r. l., round ligament; P. l., Poupart's ligament.

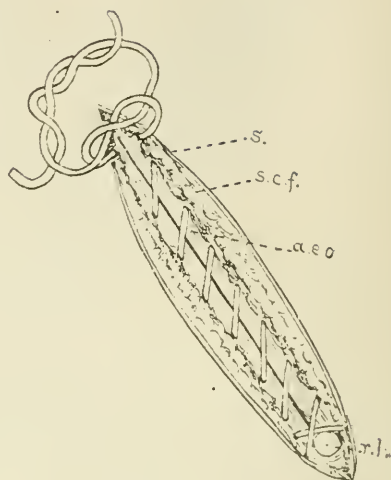


FIGURE 6.

Superficial tier of buried suture of forty-day catgut closing incision through aponeurosis of external oblique, restoring anterior wall of canal. The excess of round ligament has been cut away just outside of external ring. The part protruding through ring together with pillars of external ring pierced by lowest loop of superficial suture. Loose knot at upper end shows proper way of tying buried catgut knot to prevent slipping. Skin and fat to be closed over all by a subcutaneous catgut suture.

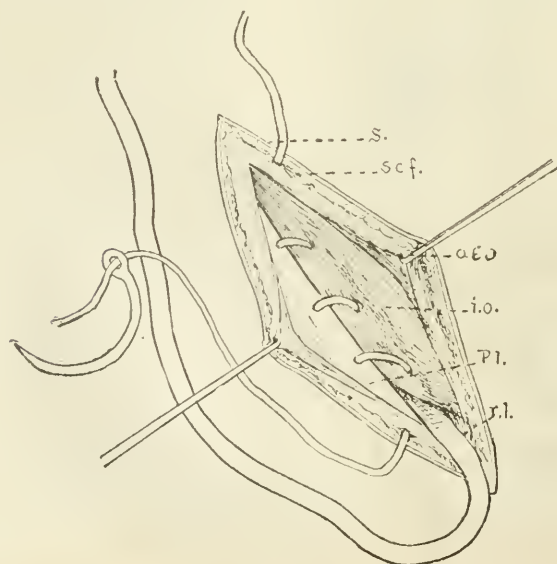


FIGURE 5.

Deep tier of suture drawn home, obliterating inguinal canal. S., Skin; s. c. f., subcutaneous fat; a. e. o., aponeurosis of external oblique; i. o., internal oblique; P. l., Poupart's ligament.

insertion (in the writer's experience in about two per cent. of cases).

Shortening the round ligament is best performed by opening the whole length of the anterior wall of the inguinal canal, drawing the ligament out at the internal ring, really shortening the intra-abdominal portion by stripping back the investing peritoneum, and closing the wound after the manner of the Bassini operation for the radical cure of inguinal hernia, leaving and securing the shortened ligament in its natural habitat behind the lower edge of the internal oblique.

Of the author's 116 cases, four were absolute failures. In one of these the operator failed to find the round ligament on one side; failures two and three were due to sloughing of the ligaments; failure four to unrecognized adhesions of one ovary which pulled back the round ligament of that side into the abdomen within a month. Two of these four patients were subsequently cured, one by vaginal and one by ventral fixation of the uterus. There were five relative failures, due to

giving way of one round ligament within the abdomen. In each of the five patients ventral fixation was immediatly substituted, with resultant cure of the retroversion. The writer preferred this course to trusting to one shortened ligament to hold up the uterus. One patient died within a week after operation of acute gangrenous appendicitis with septic peritonitis.

In the remaining 106 patients the uterus remained in normal anteversion when last examined, the period of observation varying from one month to six and a half years after operation, and averaging over sixteen months for each of the 106 cases.

The writer is convinced that these results can be improved upon.

Twelve pregnancies are known to have followed in the successful cases. Of these, two terminated in abortion: six had normal labors and deliveries at term. In all of these eight the uterus remains anteverted. Four are comfortably pregnant near term at the present writing.



## Society Proceedings.



### INTERNATIONAL PERIODICAL CONGRESS OF GYNÆCOLOGY AND OBSTETRICS.

*August 31st to September 5th, 1896.*

We present the following synopses and abstracts of papers read before the meetings:—

#### Operative Treatment of Pelvic Inflammatory Disease.

REPORT FROM HOWARD A. KELLY, M.D.,

*Prof. of Gynecology and Obstetrics in the John Hopkins University, Baltimore.*

##### FOUR METHODS.

- |   |  |
|---|--|
| <p>A. Puncture per vaginam.</p> <p>C. Simple salpingo-oophorectomy; occasionally associated with excision of one cornu uteri.</p> | <p>B. Conservative operative treatment.</p> <p>D. Hystero-salpingo oophorectomy.</p> |
|---|--|

##### A. PUNCTURE PER VAGINAM.

Cases in which vaginal puncture should be tried first before resorting to abdominal section.

1. Dense inflammatory masses lateral or posterior to uterus in close contact with vaginal fornix, or walled off from general peritoneal cavity by adhesions.

2. Old inflammatory cases in which a fistulous tract opens into rectum, bladder, or anterior abdominal wall.

3. Hydrosalpinx of large size, where the tube can be reached with safety through the vaginal fornix.

4. Encysted pelvic peritonitis.

*Reasons why this method is preferable in suitable cases.*

1. No nervous disturbance like that following the hystero-salpingo-oophorectomy.

2. Menstrual and child bearing functions preserved.

3. Short convalescence in bed eight to ten days.

4. No danger of wounding intestines like that liable to be met with in a difficult enucleation of a densely adherent mass in pelvis.

5. Mortality below two per cent.

##### *Dangers of operation.*

1. Hæmorrhage.

2. Perforation of rectum or intestine (two cases).

3. Peritonitis from escape of pus into abdominal cavity (no cases).

*Cases not likely to be completely relieved.*

1. Where in addition to the abscess cavity there is dense indurated tissue (cellulitis) extending out to pelvic walls, pressing upon nerves, blood vessels, and ureters.

2. Where there is a dense stricture of rectum due to surrounding inflammatory tissue, the abscess may be relieved but the stricture will remain and possibly give trouble later.

*Necessity of doing exploratory section in many cases.*

1. To locate accurately diseased structures and to see whether radical operation is not more certain to bring relief.

2. To avoid puncturing an intestine which may lie between abscess and vaginal fornix.

3. To facilitate the thorough evacuation of pus by properly guiding scissors into old abscesses, loculated sacs, or double pyosalpinx.

*Cases in which vaginal puncture is of the greatest value.*

1. In young married or unmarried women; in the case of girls who have not come to maturity even seriously diseased organs should not be removed, until every other means of cure has failed.

Refer especially to Miss Starloff (aged 20 years), Miss Kane (aged 19 years), and Miss Hoops (aged 17 years), all of whom are perfectly well. Menstrual function in no way interfered with.

*Operation.*

Examination; differentiation between cases to be punctured without exploratory section and those which require it.

(a) *Where exploratory celiotomy is done first.*

1. Cleansing of vagina.

2. Operator make exploratory incision and if he decides to puncture,

the subordinate assistants place patient in perineal posture, first assistants and operator keeping their hands clean.

Abdominal incision is protected by a pad of gauze.

3. Operator should keep one hand absolutely clean, so that, if necessary, he may make a bimanual examination through the abdominal incision, while the other hand is inserted into the vagina.

If the abdominal hand is removed and comes in contact with vagina it should not be reintroduced into the abdomen without being cleansed.

4. After vaginal puncture first assistant closes abdomen.

(b) *Simple vagina puncture.*

1. Disinfect vagina.

2. Locate most accessible point for puncture being careful to avoid uterine arteries, ureters, and bladder.

3. Insert scissors on index finger, thrust into sac, and withdraw partly open.

4. Dilate, if necessary, with large uterine dilators.

5. Irrigate cavity with sterilized salt solution, but if there is a possibility that the peritoneal cavity has been opened into, *do not irrigate.*

6. Drainage—Gauze, rubber tube, silver tube.

*After care of patient.*

1. Withdraw tube in five days, irrigate cavity with a weak solution of boric acid or hydrogen peroxide, using small curved glass douche nozzle.

2. Insert new tube or pack with



gauze: remove at the end of three days.

3. Irrigate vagina twice daily with boric acid douche, until discharge ceases.

4. Let patient get out of bed on the eighth day, if the convalescence is uninterrupted, otherwise keep her abed fifteen days.

*Clinical course of cases.*

1. Occasional high temperature for first few days after puncture, probably due to absorption of septic matter.

2. Rapid fall of temperature, to normal in from three to ten days.

3. Rise of temperature, if opening closes too soon.

4. Fistulous tract usually closes in from ten to twenty days, rarely remains patulous.

5. In old cases where fistulous tract communicates with rectum or anterior abdominal wall, it may be necessary to keep vaginal fistula open for two or three months in order to allow the old tract to heal.

*Results.*

Cured . . . . .	15
Partially relieved . . . . .	9
Not relieved . . . . .	4
Returned for second or third puncture per vagina. . . . .	5
Returned for evacuation of appendical abscess . . . . .	1
Returned for radical operation . . . . .	3
Not heard from . . . . .	1
Died . . . . .	1

*Condition of pelvic organs after recovery of patient.*

Disappearance of adhesions in

some cases, considerable induration in others.

*B. CONSERVATIVE OPERATIVE TREATMENT.*

1. Free pus tubes from their adhesions, push down into cul-de-sac, and puncture.

2. Excision of one tube and one ovary of the opposite side.

*C. SALPINGO-OOPHORECTOMY, SIMPLE, OR COMBINED WITH EXCISION OF ONE CORNU UTERI.*

Suitable cases.

1. Simple pyosalpinx.

2. Simple pyosalpinx with isolated purulent foci in cornu uteri.

*D. HYSTERO-SALPINGO-OOPHORECTOMY.*

Suitable cases.

1. Simple double pyosalpinx, not accessible to vaginal puncture.

2. Densely adherent double pyosalpinx with associated metritis and purulent endometritis.

3. Pelvic abscess associated with appendicitis.

4. Pelvic abscess associated with adhesions partially obstructing the small intestine.

5. Pelvic abscess in which there is a fistulous tract leading into sigmoid flexure or into small intestine.

6. Pelvic abscess associated with myomata.

*Method of performing hystero-salpingo-oophorectomy from left to right or vice versa.*

*Advantages.*

1. Greater ease.

2. Structures always in view.

3. Inflammatory masses rolled

up and out, thus attacking them from least adherent area.

4. Vessels easier clamped and ligated.

5. No necessity for abdominal drainage.

9. Freedom from post-operative sequelæ,—adhesions, intestinal obstruction, peritonitis.

*Method of draining through cervical stump.*

Cervical canal widely dilated and piece of gauze pushed from abdomen down through the cervix into vagina. Peritoneum brought together over

stump by continuous catgut suture.

*Clinical course of typical case.*

1. No shock.

2. Rapid convalescence.

3. Out of bed from sixteen to twenty-one days.

4. No fistulæ urinary or rectal.

5. Prolapsus of cervical stump in one case only.

6. No herniæ, if abdomen is closed with silver wire.

*Results.*

Cases from my clinic in the Johns Hopkins Hospital, Baltimore.



## Treatment of Pelvic Suppurations.

REPORT OF DR. SANGER (LEIPZIG).

### CONCLUSIONS.

I. The Pelvic suppurations being very multiple, the most suitable and most conservative method must be selected in any particular case.

II. Consequently German Gynecologists uphold the following general principles:

1. There must be strict indications for the operation.

2. The intervention must be as conservative as possible.

3. The bacteriological, clinical, and anatomical diagnostic must be our guide in the choice of the intervention in any given case.

III. Most surgeons discard nowadays vaginal hysterectomy and hysterio-salpingo-oophorectomy as the only method of treatment, or the one to be selected, in case of the most frequent and most important cases of

pelvic suppurations, namely those originating in the appendages. They prefer to the two above-named operations, more conservative methods and the abdominal operation.

Hysterectomy is not the only thing to be considered in the treatment of pelvic suppurations.

IV. General importance of preventive measures.

V. Respective value of the expectative and operative treatment.

VI. Special methods of treatment:

1. Punction is limited to inveterate cases of encysted abscesses or single purulent collections in the closed organs. Success can be expected only when the pus is sterile. The only cases to be treated by this method are those in which

the purulent foci can be reached without danger of crossing the free pelviperitoneal cavity.

2. Incision applies:

(a) To extraperitoneal purulent foci. The proceeding ought to be limited to real purulent collections. Connections of the ureter are to be considered. As to the phlegmonous pelvic exsudations consequent on the puerperium, the frequent existence of which is proved by numerous scars, we must lay a great stress upon prophylaxis and make a timely treatment.

(b) To intraperitoneal purulent foci; this operation may be called simple colpocœliotomy (generally posterior.).

The simplest proceeding consists in the incision of the vagina by means of the thermocautery and opening of the foci with a dressing forceps. There is no necessity for irrigations, or filling of the cavity with gauze immediately after the operation; this will be done in the post-operative treatment.

In order to obtain a larger opening we may add to this the median incision of the posterior wall of the cervix, besides the resection of the uterus (Th. Landau). I have operated myself two cases of ante-uterine intraperitoneal purulent foci by simple anterior colpocœliotomy, and Prochoronick has indicated 6 cases.

Incision is especially to be selected in chronic and single purulent collections containing pus almost always sterile; it may be of some use in cer-

tain cases after merely explorative cœliotomy; finally it may be resorted to in cases of suppurations consecutive upon incomplete radical vaginal operations.

Incision is also to be selected in certain acute cases such as free abscesses in Douglas's pouch, and suppurating hematoceles. In the latter cases it is only to be recommended when symptoms of general peritonitis occur at the same time; if these are lacking, the operation of the hematocele, etc., by cœliotomy is to be preferred.

The wide incision of Douglas' pouch and of the parametrium in case of acute septic parametritis and pelviperitonitis, (Henrotin, Jacobs) has not yet been fully tested.

In the question which is now under discussion, we can to-day oppose to hysterectomy (uterine castration of Péan), which is no longer considered as the only operation to be selected, and to the extirpation by the radical vaginal method of encysted purulent foci, which is not always possible, the incision through the vagina of the cavities of the purulent collection with preservation of the uterus. The latter operation is liable to improvements in the future, and its relative value aforesaid is equal to the value of incision of multiple abscesses of the kidneys instead of nephrectomy.

To follow by the sight the process of the finger from the vaginal incision H. A. Kelly opened the abdomen.

(c) Cœliotomy is always indicated in purulent collections whose

size amounts to real tumors, as well as in suppurated cystic and other neoplasms. Simple cœliotomy and drainage suffices in encysted foci, remnants of purulent (and tuberculous) peritonitis, if however the removal of the appendages or of other suppurated organs is not demanded.

Suppurated organs must be entirely extirpated (such as larger purulent pouches originating in tubes and ovaries, suppurated tubal or tubo-abdominal pregnancies, ovarian suppurated cysts, etc.). Simple incision of the focus in one or two acts has to take place only in cases of absolute necessity. A combined operation consists in opening firstly the focus, then closing it by sutures from the abdominal cavity after complete evacuation, and draining through the vagina. (A. Martin).

3. The difficulties as to the choice of an operative treatment, in connection with the opening of the abdominal cavity, in suppurated diseases of the appendages have recently been enhanced through the increased number of the proposed operative proceedings:

*Classification of operative proceedings.*

I. Operations through the vagina.

1. Anterior colpocœliotomy (Dührssen, A. Martin, etc.)

2. Posterior colpocœliotomy (Atlee, Hegar, Battey, Byford, Laroyenne, L. Landau, Mackenrodt and others).

3. Anterior and posterior colpocœliotomy (Bode, von Erlach, Gottschalk), all combined with

uni- or bilateral salpingo-oöphorectomy.

4. Colpohysterectomy (uterine castration of Péan).

5. Colpo-hystero-salpingo-oöphorectomy "radical operation through the vagina" (Péan, Ségond, Doyen, L. Landau).

II. Abdominal operations.

1. Uni- or bilateral cœlio-salpingectomy and cœlio-salpingo-oöphorectomy.

2. Total cœlio-salpingo-oöphorectomy (radical abdominal operation. Krug, Polk, Delagenière, Schauta, Bardenheuer, etc.).

3. Bilateral cœlio-salpingo-oöphorectomy combined with supra-vaginal hysterectomy (Zweifel, H. A. Kelly, Sänger).

III. Abdomino-vaginal hysterosalpingo-oöphorectomy, commenced most often through the vagina and ended by abdominal section (L. Landau).

IV. Sacral or parasacral cœliotomy (Hegar, von Hochenegg, Czerny, Schede and others). This operation is performed only by a few surgeons in rare cases.

This table shows, that there are two sorts of operations, vaginal and abdominal, each of them forming a distinct chain extending from conservative to radical operations. This state differs somewhat from what had been the fact in 1892. Indeed at that time we could set in opposition to vaginal hysterectomy, which had not yet been sufficiently improved in order to become a radical operation, only the abdominal Salpingo-oöphorectomy.



The recognition of the harmful influence of premature extirpation of ovaries or of complete extirpation of the whole internal generative organs, especially in younger persons, has led to vaginal and abdominal conservative operations.

The treatment of all the symptoms arising often from these mutilations (cachexia oöphoripriva L. Landau), which consists, according to Brown-Sequard, in feeding the patient with ovarian tissues and in hypodermic injections of ovarian juice, is just being put to the test.

At any rate it is infinitely preferable to save all that can be preserved of the ovaries and uterus rather than have recourse later to ovarian or uterine alimentation, as also has already been done. "*Parce ovario et utero si possis.*"

Thus we have on record many cases, in which the suppurated appendages of one or both sides have been removed by anterior and posterior col-pocœliotomy.

As far as anterior col-pocœliotomy is concerned, many cases have been reported to me, besides the cases already published by Dührssen, Koss-mahn, Riedinger, by Bode, Czempin, von Erlach, A. Martin, Prøger, Prochownick, Simon.

As to posterior col-pocœliotomy, much more now in use, Goullioud, Laroyenne's pupil, has already published a report at the congress in Bruxelles, 1892, and also more recently Mackenrodt.

Other cases have been reported to me by Bode, Czemain, Everke, Gun-

ther, Kotschan, Leopold, Meinert, Prochownick, Simon, Wehmer.

Radical operations are fully justifiable, when the disease is serious enough to demand total extirpation of the affected organs.

Hence results, that we must discard entirely the vaginal extirpation of a normal uterus, when this extirpation is only a preparatory means allowing to reach the appendages.

Looking upon the uterus as a "*quantité négligeable*" entails grave consequences.

A radical operation either through the vagina or in the abdomen is, for instance, not justifiable: in uni-or bilateral purulent salpingitis, when the abdominal orifice of the tube is still patent; in slight affections of purulent salpingitis, of ovarian abscess, in non purulent chronic affections of the appendages, in simple chronic inflammations of the uterus (hyperplastic Endometritis, chronic gonorrhœal Endometritis, chronic Perimetritis). It is better to leave a menstruating uterus, even if slightly diseased and requiring treatment than no uterus at all.

On the other hand a radical operation is entirely justifiable in serious suppurations of the appendages, the pelvic peritoneum, the pelvic connective cellular tissue, when these last named affections co-exist with a serious uterine disease, which of itself already would demand the extirpation of that organ (myoma, carcinoma, sarcoma, mild affections of the endometrium giving rise to profuse hæmorrhages etc.) or in case a puru-

lent affection of the appendages invades the uterus, also in cases of tuberculosis. Landou's "complicated pelvis abscess," i. e. the combination of unilateral tubal and ovarian suppurations with purulent foci in the cavity of the pelvis and in the connective pelvic tissues, is very rare.

In most cases, even in very serious cases of pyosalpinx and pyovarium, they are only surrounded by the inflammatory masses; in most cases, they are multiple purulent foci, situated in the ovarium, which simulate suppuration of the connective tissue, and do not seem to be situated between the ligaments (Pawlik).

The age of the patient is to be considered: for the indications for operating are stronger as she is nearer to the climateric.

For the treatment of pelvic suppuration and especially of suppurated appendages, the contest is still open between the advocates of the radical operation through the vagina and those of salpingo-oöphorectomy, and total extirpation, both abdominal.

There is double disagreement (*a*) as to the radical operation itself through the vagina and its use: (*b*) as to the use of forceps instead of ligatures.

In Germany medical opinion has altered, since 1892, in as much as radical operations are more advocated than formerly: but ligatures are still preferred.

Most operators still prefer abdominal salpingo-oöphorectomy, the hysterectomy, and vaginal hysterio-salpingo-oöphorectomy with liga-

tures, while recognizing Péan's genius, who first used forcipressure in radical operations through the vagina for pelvic suppurations.

The different operative proceedings of Péan's pupils and adepts, Ségond, Richelot, Terrier, Jacobs, etc., have been fully appreciated in Germany, and we have also recognized the value of the modifications introduced into Péan's primitive methods, such as: median incision of the uterus, omission of preventive hemostasis after Doyen, and total median section of the uterus after Müller-Quénu. However, although Péan's methods and its modification by Doyen, have found in L. Landau and his followers ardent advocates, who have been very successful, yet German gynaecologists perform only as an exception vaginal hysterectomy and radical operation through the vagina, and seldom with forceps, whilst they operate even the most difficult cases of suppurations by the abdominal way. My assertion is based upon the statement of about 60 German gynaecologists, in answer to my question as to which method they preferred: abdominal or vaginal. The 25 following gynaecologists have never performed vaginal hysterectomy for pelvic suppurations: Dohrn, Eckhardt, Ehrendorfer, Fehling, E. Frankel, Frömmel, Gottschalk, Grafe, Gussow, Kehrer, Keller, Klein, Kümmell, Osterloh, Präger, Runge, Schramm, (uses clamps for hysterectomy), Schuchardt, Simon, Staude, Stumpf, Walcher, Wiedow, von Winckel, Zweifel.

All the others have performed

vaginal Hysterectomy as an exception, almost always with ligatures, meaning that they have not operated by the vagina the most severe cases, namely those for which clamps are absolutely necessary.

Some of them assert, that they operate through the vagina only when they expect no or few adherences. Others quote just one or two cases. Finally some lead us to suppose that they have operated chronic affections of the appendages, which were not suppurated. Some others having commenced by a vaginal salpingo-oöphorectomy have been obliged to end it by the removal of the uterus.

The following operate only with ligatures: Asch (few cases), Bode, Czerny, Everke, von Erlach, Günther, Kötschau, Leopold, (the first in Germany) A. Martin, Meinert, Hermann, (one case), Schauta (used clamps only as a trial) Thorn, Werth.

Used alternatively clamps and ligatures: Baumm, Bumm, Hofmeier, Küstner, Prochownick, von Rosthorn, Wehmer. Yet most of them prefer ligatures. Prochownick alone "uses especially clamps, in suppurated affections. Clamps alone have been employed by Czempin "since 9 months and only in cases where no strong intestinal adherences were expected;" by Pfannenstiel in 2 cases; Dooderlein in 4 cases, while before he operated 58 cases of salpingo-oöphorectomy by the abdominal way.

Five surgeons alone have lately accepted the vaginal radical opera-

tion, Bode, Bumm, Dooderlein, Schauta, Werth; Dooderlein alone employed exclusively the clamps in his 4 cases. Bumm and Schauta aimed at the extirpation of the gonorrhœal uterus. Since November 1893, I have performed 44 times vaginal hysterectomy and hysterio-salpingo-oöphorectomy, according to Péan's method, almost as modified by Doyen, and in very different indications, including very few cases of pelvic suppurations and chronic affections of the appendages alone: but lately I, as well as Jacobs have resumed the use of ligatures. In the same time I have operated 36 cases of pelvic suppurations by the abdomen, and all my patients recovered.

The principal objections to vaginal hysterectomy and to hysterio-salpingo-oöphorectomy are the same as formerly, namely: Beginning of the operation by the uterus and not by the affected appendages; impossibility of stopping the operation to make it conservative; a good survey of the operating field cannot be obtained; other purulent foci (Appendicitis) may go unnoticed; absolute impossibility in certain cases to perform a radical operation, danger of wounding the neighboring organs, especially the intestine, danger of hæmorrhage in case of slipping of the clamps, etc.

On the other side, the disadvantages of the forceps are the following: inconvenient position of the patient after the operation, consecutive

hæmorrhage, lesions of the intestine, danger of infection by the mortifying stumps, and, before all, non closing of the abdominal cavity. It must, however, be observed, that this last advantage is not really convenient in cases of pelvic suppurations, for the pelvic cavity is generally separated from the abdominal, and the large opening of the pelvic cavity may be desired.

In cases of slight suppurating diseases of the appendages, when in operating one does not find free pus, and when the pouches are not opened, one can entirely close the peritoneal cavity.

Since Kaltenbach and Olshausen have introduced this closing into use (Olshausen's paper in the last German surgical congress of 1896), we attach much importance to it, and this is the principal reason, why German gynæcologists prefer the ligatures.

It is not the same, when the radical vaginal operation is selected for severe bilateral suppurations of the appendages, or for complicated pelvic abscesses; for in these cases the operation with clamps is certainly much easier and more convenient, the pelvic cavity has to be left open.

In favor of the abdominal operation, it can be said, that the technic of abdominal surgery has also improved, as well as its danger has diminished owing to:

- (a) The uses of asepsis.
- (b) The ether anæsthesia.

(c) Trendelenburg's position.

(d) The drainage with gauze.

(e) A better closure of the abdominal wound.

(f) The same reasons have facilitated a more radical intervention than the vaginal extirpation, namely, the radical abdominal extirpation, which is the most radical operation, and originated on one side in total extirpation of the myomatous uterus (Bardenheuer, A. Martin, Krug, Polk, Penrose, Baldy, and others, mostly Americans) on the other side is the fact that, after salpingo-oöphorectomy, the uterus being preserved, the pedicles and ligatures may give rise to many troubles and painful symptoms, necessitating in single cases subsequent extirpation of the uterus through the vagina. (Chrobak, Schauta.)

The operation has been performed oftenest by American surgeons (v. Ernest Cushing's list, in *Monatsch. für Geb. u. Gyn.* 1. 6).

Schauta, at the VIth Congress of German Gynæcologists (Vienna, 1895) relates 30 cases, with 2 deaths. He has recently performed the radical vaginal operation (Wertheim's private communication to me).

It results from the answers to my circulars, that many German gynæcologists perform, but only in rare cases and under special indications, the supravaginal cœlio-hysterectomy or total cœlio-hysterectomy in cases of suppurated appendages. I also have done the same.

Thus the radical abdominal oper-



ation has been performed by Czempin—5 cases, 3 deaths. Döderlein—2 cases, Everke—numerous cases — v. Ros-thorn.

Bardenheuer has recently published through his assistant Bliesener a long paper (Monats. f. Geb. u. Gyn., III., 5, 6 and IV., 1), in which various operative methods are thoroughly discussed reporting 40 operations with 2 deaths. The number of his operations, according to the answer to my circular amounts actually to 56, with 3 deaths. The technical peculiarity of his operation lies in the point, that the operator attacks the appendages by the anterior layer of the broad ligament, and that he makes a peritoneal septum in suturing the rest of the broad ligament, the sigmoid flexure, the epiploic appendices, so as to completely isolate the pelvic cavity from the general peritoneal cavity. He renounces at once the closure of the peritoneal opening, and the intestinal adhesions are attribute<sup>1</sup> to the immediate plugging with gauze. The after treatment of Bardenheuer's operation, difficult and complicated as it is has almost always but very protracted. The patients remained in the hospital 10 1-2 weeks, as an average, and severe complementary operations have often had to be performed on them.

Hence the vaginal operation, perhaps less radical than the abdominal, is however infinitely simpler and far less dangerous in its execution; it must be considered as the one to be selected.

6. Bilateral salpingo-oöphorectomy may be combined with another radical abdominal operation, namely, supra-vaginal hysterectomy, or transversal amputation of the uterine body. It is H. A. Kelly who has most often performed this operation in cases of suppurated appendages. There are however on record other cases by Bode, Pfannenstiel and myself. Owing to Zweifel's excellent method of continuous ligature, this operation can hardly be called a complication, so much the more so, that it simplifies the formation of the ligamentary stumps.

Every time, that preservation is not indicated, the supra-vaginal cœlio-salpingo-oöphoro-hysterectomy will be the least dangerous radical operation.

It can even be performed while preserving parts of the ovaries (Zweifel).

#### VII. *Question of drainage.*

Reasons why it is indispensable in abdominal operations.

#### *Indications:*

1. Every time that virulent pus has contaminated the operator's hand or an unimpaired part of the abdomen.
2. Every time that the hemostasis is not perfect, especially when there is a discharge of virulent pus.
3. In case of the existence of a fistula before the operation, or of perforation of the intestine happening during the operation, or likely to happen afterwards. Every time also, when fistulæ or perforations have been closed by suture.

Fistulæ and intestinal lesions must be operated only by cœliotomy.

(V. Sängcr, Centr.-Bl. f. Gyn. 1895, 47. and von Dittel, *ibid.* 1896, 3).

From a technical point of view preference should be given to drainage by plugging, according to Miculicz.

I have taken up this plugging since I have given up drainage with gauze and glass tube.—1892.

I have performed it 13 times in 42 operations for suppurated appendages, with one fatal case, death resulting immediately upon the operation, this case was an extremely complicated one.

Advantages and disadvantages of drainage. May I be allowed to point out to Bardenheuer-Bliesener that intestinal obstruction has never been observed, not any more in this case than in other cases of drainage according to Miculicz?

The abdomino-vaginal drainage with gauze, as used by Döderlein in 1-3 of his cases, does not ensure either perfect draining of the secretions, or isolation from the rest of the abdominal cavity, unless a peritoneal septum should have been established above (von Ott, Zweifel and others). It is not sufficient in case of intestinal lesion as the feces come out through the wound at first after a few days. The opening to the vagina may meet difficulties in cases of wide intestinal adhesions at the bottom of Douglas' pouch. Owing to Miculicz's drainage, which Pozzi and others have also approved, all the difficulties of an abdominal operation

can be faced: neither hæmorrhage, discharge of pus, accidental lesions, nor especially the intestinal ones are fatal; one can operate in a much more radical manner and with less danger, less anxiety for the patient's life than in closing the abdominal cavity or doing imperfect drainage.

## VII. *Results.*

### *Own results.*

Since my last report (V<sup>th</sup> German Gyn. Congress, Breslau, 1892), I have performed cœliotomy in 36 cases of serious pelvic suppuration, including one total abdominal extirpation, one supravaginal amputation, 11 Miculicz's drainages. All the patients recovered (see details as per report).

My circular letters in regards of statistics have been answered in such an incomplete manner, that they cannot be taken into account in this paper.

Statistical differences are so slight that they do not yet afford data enough for final conclusions.

Ségonc, Richelot, Terrier, Jacobs, L. Landau and others have published statistical lists on vaginal hysterectomy; Chrobak, Schauta, Zweifel, A. Martin, myself and others on cœlio-salpingo- oöphorectomy; Ernest Cushing, Bliesener on radical abdominal operations; Max Landau (Jacob's clinic) furnished us with comparative statistics.

The vaginal method cannot be said to be superior to the abdominal method with the exception of radical abdominal operation.

Excellent results have been obtained by the most fortunate opera-

tors from both methods; nevertheless the abominal method gives better results.

L. Landau out of 109 radical vaginal operations reports one fatal case (Vienna 1895): in his recent book we find no new statistics; Zweifel also reports only 2 fatal cases out of 216 abdominal operations on the appendages (meeting of the Gesell. f. Gebh. zu. Leipzig., Dec., 1895).

### *Conclusions.*

Advocates of the different operative methods ought to avoid pretending an absolute superiority for their

own proceeding. Every appropriate treatment may be justified and in every individual case it is far better to take into serious consideration the special advantages offered by each one of the methods.

Let every one strive to perfect his own operative methods, while recognizing at the same time the value of others: the result will then become collective improvement and progress.

The time is gone where one single method would dare to claim an exclusive privilege of truth.



## **The Surgical Treatment of Retro-Deviations.**

REPORT FROM PROF. W. M. POLK, (NEW YORK.)

Summing up the deductions of our presentation of the subject: "The surgical treatment of retro-deviations" we submit them in the following propositions.

1. Retro-deviations, especially in a uterus capable of pregnancy, should not be healed by any operation which fixes the fundus or body to the abdominal wall or to any contiguous structure, such, as the bladder or vagina.

2. In cases capable of pregnancy uncomplicated retro-versions should be healed by external inguinal shortening of the round ligaments (Alexander's operation), and they may be healed by intra-peritoneal shortening of the round and utero-sacral ligaments, operating through the vagina.

3. In cases capable of pregnancy, uncomplicated Retro-flexions should

be healed by intra-peritoneal shortening of the round ligaments, and if necessary, of the utero-sacral as well, operating through the vagina.

4. In cases capable of pregnancy, retro-deviation complicated by adhesions should be healed by intra-peritoneal shortening of the round ligaments, and when necessary, of the utero-sacral also operating when possible through the vagina.

Alexander's operation may be applied to the versions, after rupture of the adhesions through a colpotomy, provided the round ligaments have not adhered to their sheaths, as sometimes happens, because of the antecedent perimetritic inflammation.

5. Retro-deviations in a uterus deprived of its appendages should be healed by intra-peritoneal shortening of the round ligaments, and of the

utero-sacral also, when needed.

6. Retro-deviations after the menopause should be healed by intra-peritoneal shortening of the round ligaments, and of the utero-sacral also. The operation being conducted through the vagina, if it be possible. If there be no adhesions and the uterus not atrophied, Alexander's operation will suffice.

7. Whenever elongated, so as to form a direct factor in retro-deviations, the utero-sacral ligaments should be shortened as a stage of the operation, the vagina being the most feasible route for the procedure.

In order to render these propositions more exact we present in the following

#### APPENDIX,

##### **The Operation of Shortening the Round and Utero Sacral Ligaments.**

1. The anterior vault of the vagina is opened as in anterior colpotomy the vesico-uterine space is entered, the uterus and appendages are freed from adhesions if such exist, the uterus is anteverted and the fundus brought into the vagina.

The round ligament with its peritoneal sheath is encircled with a silk suture, as far out from the uterus as will permit the easy attachment of the part encircled to the uterus at the origin of this ligament.

This folds the ligament inwards upon itself, presenting of course two loops, one is always sutured to the uterus, the other is now sutured to the round ligament outside the folded section, which section in turn is encircled with the third suture, special care must be taken to avoid the tube, the suture being passed as close to the ligament as possible.

The manœuvre is repeated on the opposite side, the uterus is replaced in the peritoneal cavity and the wound closed with catgut, suturing first the peritoneum, and then the vaginal wall.

2. Open the posterior vault of the

vagina, by a transversal incision coincident with the utero-vaginal junction, and extending fully to the corner of its lateral aspect upon both sides. Enter Douglas's cul-de-sac, and pass a stout silk suture over the utero-sacral ligament at about its middle. This is done on both sides, the ligaments being put on the stretch to facilitate the procedure. One end of each suture is now passed through the vaginal wall, each upon its lower side, at the outer ends or angle of the cut, and is then firmly tied. This draws the cervix upwards and backwards to the extent of about half the length of each utero sacral ligament. The wound in the vagina is closed with catgut, and the sutures holding the utero sacral ligament are left long, tube removed at the end of two weeks. The patient is confined to bed at least three weeks, no pessary is used. Special care taken to keep bowels open and avoid distention of the bladder, cases with prominent abdomen should subsequently bear an abdominal supporter.\*

1. \* Prolapse of slight degree is treated by shortening of the round and utero-sacral ligaments, with Colporrhaphy.

2. Prolapse of extreme degree is treated by amputation of the cervix—Shortening of the utero-sacral ligaments—Alexander's operation and Colporrhaphy—or by hysterectomy with utero-fixation of the stump as described in Transactions of the American Gynecological Society, 1893.



## The Surgical Treatment of Retro-Displacements of the Uterus.

PROF. DR. S. POZZI.

### CONCLUSIONS:

I. The clinical syndromes known as retroversion and retro-flexion do not form a distinct pathological condition. They are to be considered as special affections only on account of an old tradition, which should today be made over.

II. Retro-displacement of the uterus, either simple or with flexion, is observed in two entirely different conditions :

(a). Relaxation of the ligaments, without adhesions due to a former perimetro-salpingitis. This is the movable retro-displacement.

(b). Posterior adhesions, especially around the adnexa, following a perimetritis or a peri-*oöphoro*-salpingitis. This is the fixed retro-displacement and is by far the most frequent.

There is no connection to be established between these two orders of lesions, known by the same name at a time when the analysis of the signs given by digital examination was still rudimentary and when tubo-ovarian lesions were almost unknown. Consequently tubo-ovarian inflammatory tumors prolapsed in the posterior cul-de-sac were generally mistaken for retro-displacements.

III. For movable retro-displacements, the term mobility (excessive) of the uterus should be substituted for those of retroversion and retro-

flexion. In point of fact the backward displacement is simply in this case the most natural position of a uterus which has lost its fixation and consequently its normal anteversion; but this abnormal displacement is only a cause in itself of slight compression symptoms. The principal phenomena of nervous and reflex origin are independent of the direction of the displacement and are due to the mobility. They persist when the uterus is momentarily put back in position without being kept there. They appear to be due to a bad equilibrium in the abdominal statistics, to a real pelvic enteroptosis.

IV. All surgical treatment, of these cases, which aims to fix the uterus, when replaced, by limited points of its surface, will only give temporary results. The constant traction on the point of fixation produces relaxation. It is the cause of unsuccessful results which usually occur after a variable lapse of time following Alexander's or similar operations. Abdominal hysteropexy, vagino and vesico-fixation can only give a temporary success. For that matter many of these operations should be no longer accepted because of the danger they may cause at labor occurring afterwards.

V. The rational treatment of movable retro-displacements, or better still, of mobility (excessive) of the uterus is complex and should



provide for the various indications present:

(a) Cure the metritis, which is very frequent in such cases, by proper treatment (curettement, amputation of the cervix, etc.)

(b) Restore the perineum, often ruptured or relaxed, by a large and extensive plastic operation.

(c) Apply a pessary which fixes the cervix by distending the posterior cul-de-sac as well as a hypogastric bandage which regularizes the intra-abdominal pressure.

VI. The treatment of fixed retro-displacements of the uterus is that of the lesions which have produced it and keep it up.

It is always due to more or less strong adhesions seated on the uterus or more especially on the adnexa. Some may be broken up by massage combined or not with the passage of the uterine sound, but this practice always offers a certain amount of danger.

It is not rational, because the retro-displacement is only a secondary phenomenon in these cases. The principal morbid element is not the displacement, not the adhesions but it is the diseased condition of the uterus, tubes and ovaries, that is the principal condition. The surgical question should consequently be seen in a new light and the treatment is to be especially based on the more or less great degree of damage of the adnexa and uterus.

VI. Many fixed retro-displacements are indolent, forming curative

lesions, acquired and tolerated, but morbid symptoms occur if the uterus, displaced and adherent, is again the seat of metritis. The operative cure of the uterus by proper means will be sufficient to cause the accidents to disappear if the adnexa are only slightly or not at all diseased.

VII. In other cases clinical examination shows that the lesions predominate in the adnexa and that a metritis co-exists, it is denteropathie. Laparotomy is there indicated.

If only slight lesions of the adnexa are found, such as a sclerocystic ovaritis without obliteration of the tubes serving as a starting point for adhesions, conservative operations should be performed such as ignipuncture and partial resection of the ovary according to the given case.

The uterus will return to its normal position of itself after destruction of the adhesions. To be more sure I used to complete the operation by an abdominal hysteropexy but I no longer do this, fearing dystocia later on. But, nevertheless, my results are just as good.

If you are dealing with marked lesions of the tubes and ovaries with obliteration of the former, castration should be performed because fecundity is definitely abolished. The uterus becomes ante-verted on account of the shortening of the ligaments produced by the ligature of the pedicles.

VIII. There are cases in which

the best treatment of a retro-displacement is vaginal hysterectomy. These are cases of old bilateral lesions of the adnexa, complicated by chronic metritis with hypertrophy of the uterus. In such conditions, extirpation of the adnexa by the abdomen and after destruction of the adhesions, leaves a large and heavy uterus, which will soon be again retro-displaced in the posterior vaginal cul-de-sac. A complementary abdominal hysteropexy can of course be per-

formed at the time of operation and later cure and involution of the organ can be brought about by curettement and amputation of the cervix and lastly repair the perineum, if relaxed and insert a pessary. But this practice is much more complicated and long and quite as serious as vaginal hysterectomy: consequently we are in the right to perform the latter operation in exceptional cases.



### Operative Treatment of Uterine Retrodeviations.

PROF. OTTO KUSTNER.

#### CONCLUSIONS.

1. Although no operation actually proposed for uterine retroversions can return the uterus and adnexa to their normal position, we must prefer the new position, artificially produced, for the primitive retro-deviation; for it gives to the uterus to the same extent its normal mobility. The formation of adhesions with neighboring organs is thus prevented, so is the prolapsus, shortly the pelvic static is restored to some extent.

2. It is necessary to carefully differentiate the reducible from the non-reducible retrodeviations; the last ones must be first made movable. To keep the uterus in anteversion or in antelexion, we shall employ the same methods as for those which were reducible from the first.

In operating for mobilising the adhesions (mobilising operations),

we must not open the abdominal cavity when the adhesions are not too resistant or too large. In such cases massage, or Schultz's method will suffice. If the adhesions were too numerous or too resistant we should open the abdomen in order to free the uterus as well as possible.

4. The opening into the abdomen can be made through the anterior or posterior cul-de-sac, as well as through the abdominal walls. No doubt with laparotomy, we can have a fuller view of the state and size of the adhesions. Therefore it has great advantages in the careful treatment of adhesions and of adnexa which are always more or less affected.

Anterior and posterior colpotomy is much less accurate, and can give less complete results. The anterior colpotomy does not always enable us to

avoid wounding the neighboring organs.

5. The value of the methods which have for design the fixation of the uterus in a new position is judged by the two following desiderata:

(a) They must keep the uterus in good condition.

(b) The healthy functions of the uterus must be in no way interfered with.

6. The results obtained by ventro-fixation, vagino-fixation, abdomino-vesical fixation and by Alexander's operation, show that these operations can keep the uterus in good position. The same cannot be said of recent modifications of these methods, and of Sanger's retrofixation.

7. The normal functioning of the uterus is not, or relatively slightly troubled by ventro-fixation, Alexander's operation and vesical fixation.

8. It is, on the contrary, deeply troubled by vaginal fixation when this extends to a large surface of the anterior aspect of the uterus.

9. We must therefore not perform vagino-fixation on women in the child-bearing period. When patients cannot conceive, this operation gives very good results. When in the last patients the uterine deviation is accompanied with falling of the uterus, or some degree of prolapsus, we can with advantage combine vagino-fixation with colporrhaphy.

10. When the adhesions are large, the best operation is laparotomy, followed by rupture of the adhesions with Paquelin's cautery, with

scissors, or with the fingers, and ventro-fixation after Olshausen's method.

If the adnexa are diseased, we must strictly adhere to conservation. We must never amputate them, unless they are seriously affected; we must only liberate them from the adhesions.

In young women it is necessary to leave as much as possible of the ovarian tissue. We must treat, generally, every uterine retrodeviation, on these principles. Curetting, baths and other symptomatic treatment must be used only in exceptional cases.

11. The best operation for reducible retrodeviation is Alexander's operation, performed after Werth-Kocher first precepts; for it gives in every case a nearly or really normal position to the uterus.

12. The duration of the affection, the uselessness of pessaries, the dislike of patients for this treatment, etc., are the indications of operative treatment in reducible retrodeviations. The objective indication is deformity of the vagina, not permitting the use of pessaries.

13. As prolapsus uteri is generally but a consequence of uterine retrodeviation, the operator must, before all insure the straightness of the axis of the uterus. Consequently, the best treatment of prolapsus uteri is ventro-fixation of the uterus, to which we must add, at the same sitting, the various plastic operations intended to narrow the vagina.

## The Method of Closing the Abdomen Which Seems the Best for Preventing Abscesses, Eventrations and Ruptures.

REPORT FROM DR. GRANVILLE BANTOCK, (LONDON.)

The subject to which I have the honour of directing your attention is "The best method of treating the wound in abdominal section with a view to the prevention of abscess and hernia."

In the case of the abdomen we meet with conditions which do not obtain in any other part of the body. We have to contend against a force of ever varying intensity, from the slight movement of natural respiration to the violent muscular action involved in the effort of vomiting, so that the wound is deprived of that rest which is such an important factor in the healing process.

When the surgeon makes an incised wound and closes it again, in order to obtain the best results he aims at securing primary union or as it is sometimes called "Union of first intention." Important as this is in all cases, it is especially important in the case of wounds involving the whole thickness of the abdominal parietes, for the reason above stated. As, in the natural arrangement of the parts hernia is a very common occurrence, so, if we add another weak point, we expose our patients to an additional risk of this accident. It may be affirmed that the importance of securing primary union in the cases under consideration is little affected by the length of the incision.

For the sake of facility of discus-

sion the subject may be divided into two parts, viz:—

The treatment of the wound (1) with the view of preventing abscess, and (2) with a view to the prevention of hernia. These two aspects of the question might at first sight appear to be synonymous, the one involving the other. But it is not so. Thus, a wound may suppurate extensively and yet the patient will escape subsequent hernia, or the surgeon may succeed in obtaining perfect union throughout the length of the wound and yet his patient will subsequently develop hernia. How is this apparent contradiction explained? This will appear in due course.

1. For some years past, that is, since the introduction of the Listerian or Antiseptic method, it has been a canon of surgery that all abscesses are the result of the introduction into the wound itself or into the tracks of the sutures of "germs" or (as now taught) of full grown microbes. Hence the surgeon was enjoined to employ means to prevent the access of these disturbing bodies. With those means you are well acquainted. When it again became known that wounds healed without these measures, and in many cases not only healed, but actually healed better, the destruction-of-microbes doctrine or Antisepticism gave way to a very large extent to the exclusion-



of-microbes doctrine or Asepticism. At the present day I hope I shall not be accused of holding either of these doctrines. On the contrary I have long held the view that the various forms of the Bacterium or Bacillus, however characteristic they may be of the condition under which they are found, do not stand in the relation of cause and effect, as now generally taught; in other words that they are the effect and not the cause of the conditions under which they are met with.

Had the doctrine of Antisepticism (and the treatment founded upon it), or even that of Asepticism, been confined to the idea of the introduction of a specific *materies morbi*, it would, at the present day, meet with my cordial acceptance; for this is the basis of my treatment as indicated in the word cleanliness. Lister's later teaching as given forth in his Berlin address., when he expressed the view that "the germ in the atmosphere may be totally disregarded" appears to have escaped the notice of his followers, perhaps because he went only half way towards a sound and rational conclusion.

You will therefore not be surprised that I attribute the formation of an abscess in a wound, or in the track of a suture, not to the entrance of germs or fully formed bacilli, but chiefly to the improper application of the suture in the latter, and more rarely to the introduction of foreign matter between the lips of the wound in the former case.

Thus when unhealthy pus, old

clotted blood, or other dead matter is spilt on a wound, it is very difficult to get the surface clean again: small particles remain, prolonged attempts to remove them cause injury to the tissues; the presence of these particles, which act the part of foreign bodies, produces irritation and the familiar consequences follow in the formation of pus and so on.

In a simple abdominal section for ovarian cystoma where little injury beyond the incision is done and the sutures are carefully applied, it is the rule for primary union to be obtained.

As regards the track of the suture, I repeat that abscess is not due to the entrance of germs or fully formed bacilli, but to the improper application of the suture; and the improper application consists chiefly in the strangulation of the tissues inclosed in the loop by which their vitality is impaired in greater or less degree. I affirm that I have never seen pus issue from the track of a suture without being able to say that the particular suture had been pulled too tight.

But perhaps I am met with the objection that pus so obtained contains bacilli which are found to be more or less associated with such conditions, and hence that these bacilli are the cause of the presence of the pus. I admit that the bacilli may be characteristic, but I deny the effect hitherto attributed to them. I am only at liberty at present to say that the harmlessness—I will go farther and say the beneficent action—



of bacilli hitherto regarded as possessing the most virulent properties, is now fully demonstrated, and it is proved beyond all doubt that the various forms of bacillus serve a useful purpose as scavengers. I have never accepted the doctrine of Phagocytosis and if these later observations, to which I have referred, be correct then it will not be out of place to call it eminently absurd.

I arrive, therefore, at this conclusion, viz. That in order to secure primary union it is necessary to bring the raw surfaces carefully into apposition, to take care that no foreign body interposes between the surfaces, that the sutures are not pulled so tight as to cause strangulation, and that the use of a so-called antiseptic substance does not aid the healing process. The latter condition is now almost universally admitted. In proportion as these matters are efficiently carried out in that proportion will be the success.

The occurrence of a small amount of pus in the track of a suture is a matter of very little, if any, importance. The formation of pus between the lips of the wound, as it must necessarily be in much larger quantity is more important and may be serious. I am fortunately in a position to say that while an abscess involving the length of the wound occupied by two or three sutures, has probably occurred in only one or two per cent of my cases, and could usually be traced to the presence of matter acting the part of a foreign body between the raw surfaces, I have, in only one instance

seen the whole length of the wound give way (with the exception of the peritoneum). In this case the contents of a dermoid tumour were spilt over a wound of about 2 1-2 inches in length. Ultimately, however, a very good cicatrix was obtained and no evil consequence followed.

2. I now come to the question of the mode of closing the wound with a view to the prevention of hernia. Hitherto the question has been one of principle, but now I must pass on to details.

Anatomical considerations, no doubt, in the first instance dictated the site and direction of the incision and, with the exception of special cases, experience has proved that the median incision is the best adapted for the great majority of abdominal sections. In the middle line, it is possible with care, to enter the peritoneal cavity without wounding any of the fibres of the two muscles which lie parallel to it, one on each side. Premising that in all cases it is advisable to make as small an incision as possible, I affirm that in a young and healthy subject, with well developed muscles, and only a moderate amount of fat, and when the incision can be confined to the space between the pubes and the umbilicus, it is sufficient to use the interrupted suture, embracing the whole thickness of the parietes. Thus the suture will pass through skin, subcutaneous fat, muscular aponeurosis, muscle, subperitoneal fat and peritoneum on one side and in the reverse order through the opposite side, and

while on the one hand it is advisable to include about half an inch of skin, on the other the extreme edge of the peritoneum only should be taken up. In such a case as I have indicated I contend that such a suture is sufficient and yields perfect results.

But in actual practice we meet with various departures from this which I call the normal state. Thus (*a*) the patient may be very much emaciated, both muscle and fat being reduced to a minimum or (*b*) the abdominal walls may contain an inordinate amount of fat, or (*c*) it may be necessary to extend the incision beyond the umbilicus. These conditions call for more or less different treatment.

(*a*) When the parietes are very thin I deem it advisable to close the wound in two or three stages; thus, the peritoneum is first closed by a continuous suture of catgut (if I could be absolutely certain that no suppuration would occur I would always employ fine silkworm-gut for the suture), then the rest of the wound is closed by interrupted sutures embracing skin, aponeurosis and muscle, or in extreme cases a buried suture is used to bring the muscle and its aponeurosis together while a third row of sutures closes the skin. But it is exceedingly rare that more than two rows of sutures are required.

(*b*) When the parietes contain an inordinate amount of fat I close the peritoneum first and then use an interrupted suture embracing the tissues between the skin and peritoneum.

(*c*) When it is necessary to extend the incision beyond the umbilicus I

believe it is the general custom of operators to pass on one, usually the left, side of that structure. I prefer to cut right through, to remove the redundant skin, to split the parietes on each side so as to make a broader surface, and to close the peritoneum first, in all cases. If the umbilicus be passed on one side, the raw surface will very often not exceed an eighth of an inch, and the risk of umbilical hernia is very great.

In a young and well nourished subject I regard it as a waste of time to suture the wound in stages, but in the emaciated the extra time is well spent.

The question of the material best adapted for sutures exercised the minds and ingenuity of surgeons to a very large extent.

When I began practice more than 30 years ago silk thread and silver wire were chiefly employed. It was held that in cases of vesico-vaginal fistula the silver wire had a great deal to do with the successful results of the more recent operations, and in some at least of the earlier abdominal operations silver wire was used for the sutures. But experience showed that it was not without disadvantages which constituted a valid objection and silk ere long entirely supplanted it. Many years ago a few experiments, first in the operations for the cure of perineal injury and vesico-vaginal fistula, and then in abdominal section convinced me that in silkworm-gut or Fil de Florence we had both the material and form which constituted the very best suture.

The points in its favor were that it was obtainable in convenient lengths and of suitable thickness for different purposes, that, when moistened, in warm water it was as easily manipulated as silk thread, that it presented a smooth surface like silver wire, and was much stronger than thread of the same size. My observations were made in the pre-Listerian days, and as in those days it underwent no preparation beyond staining with an aniline dye, so it undergoes no other process at my hands at the present day. We hear much of the sterilization of sutures etc. in these days. In silkworm-gut we have a suture whose mode of manufacture ought to be sufficient to remove the scruples of the most timid Listerite or the most devout believer in the doctrine of modern Bacteriology.

Such has been my experience that I have, for many years exclusively used silkworm gut for ordinary sutures, whether involving skin or mucous membrane, and that I have equal confidence in it when used as a buried suture. Having been the first to advocate its systematic use I may be allowed to express the gratification with which I regard its extensive employment and the fact

that those who have given it a fair trial are equally satisfied with their results.

#### CONCLUSIONS.

It may be convenient to sum up the preceding argument in the following conclusions.

1. Bacteria do not play any part in the production of suppuration, but are the result and not the cause of the conditions under which they are found. Thence abscess in the wound or track of sutures is not due to the entrance of "germs" or fully formed bacilli, but in the former case to the presence of matter acting the part of a foreign body, and in the latter to strangulation of the tissues by too tight constriction by the suture.

2. In ordinary cases the simple interrupted suture alone is sufficient for all practical purposes.

3. In very thin or very fat subjects it is desirable to close the peritoneum separately by continuous suture while the remainder of the wound may be closed in one or two stages.

4. For the simple interrupted suture, silkworm gut forms the best material, while for the buried suture catgut, not chromicised, will probably be found preferable.

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PROF. LA TORRE, (ROME).

#### CONCLUSIONS.

1. The closure of the abdomen has still so much importance, that it is worth being examined.

2. The definition of post-operative hernia is not yet settled, even

with specialists. Post-operative hernia is the issue of viscera through an opening of the abdominal wall; more commonly through the musculo-aponeurotic plane.

3. They were very common when the abdomen was closed by the extra-peritoneal method. They are nowadays rarer, since the abdomen, is closed after the intra-peritoneal plan or after the extra-peritoneal method, with Durante's modification.

4. Three principle factors are concerned in a good closing of the abdomen: the incision, the material of the suture, and the mode of the suture.

The most important factors are the incision and suture of the musculo-aponeurotic plane, i. e. the place where the tissues are to be cut and sutured.

5. Hernia is often produced by suture of the aponeuroses of the linea alba, not by suture made in the substance of the muscle.

When the patients are still apt to conceive, the operator must always suture the muscles. It is better, in that case, to cut into the linea alba, then, before suturing, to cut off the aponeuroses of the linea alba up to the internal borders of the recti, and to unite by suture the muscular sheath and the muscle itself.

With old or sterile patients incision and suture in the linea alba might just be recommended, when it is possible to obtain, during the operation and afterwards, the conditions necessary to a good cicatrization.

In case of secondary closing of the abdomen, incision and suture have always to be made in the substance of the recti.

6. The most commonly used suture materials are: silk, catgut, silver-wire and wormgut.

Although all are good, silk and catgut are to be preferred.

7. The best mode of suturing is always superposed rows of suture, and suture en surjet has to be preferred to separate stitches; the peritoneum, the aponeurosis of the linea alba (when the last one has not to be cut off), the deeper layers of the sheath of the recti, the muscles, the superficial layers of the muscular sheaths, then, the skin with the subcutaneous tissue must be sutured separately.

8. The patient must, after being operated, use many precautions to secure a strong cicatrix.



### Treatment of the Pelvic Suppurations.

PROF. BOUILLY OF PARIS.

#### I.

The treatment of pelvic suppurations can not be successfully undertaken without a previous knowledge as accurate as possible of the seat of the suppuration. The choice of the

method of treatment depends upon the knowledge of that seat.

Pelvic abscesses from the point of view of surgical interference may be classified as follows:

(a) Cellular abscesses. perimetri-



tis, periuterine phlegmons ;

(*b*) Abscesses of the ovaries or the tubes, pyosalpingitis and suppurated ovaritis ;

(*c*) Primitive peritoneal abscesses, pelvipéritonitis, suppurated hematocele ;

(*d*) Simultaneous suppurations of various pelvic organs constituting purulent collections, or complicated with fistulae, bursting either through the skin, or in the neighboring cavities, or in various places at the same time.

This enumeration covers most of the cases.

## II.

Puncture nowadays must be considered only as diagnostic means.

The three principal methods of treatment of pelvic suppurations are :

1. The mere incision followed by drainage through the abdominal or vaginal wall ;

2. The opening or ablation of the suppurated cavities by laparotomy ;

3. The opening or ablation of the suppurated cavities through the vagina, by means of previous vaginal hysterectomy with or without morcellation of the uterus.

4. As derived from these principle methods can be considered : (*a*) the ablation through the vagina of small unilateral collections, with preservation of the uterus and appendages of the opposite side : (*b*) the simultaneous ablation of the appendages and uterus through the abdomen.

The method to be elected is the

mere incision followed by drainage :

(*a*) For the opening of acute pelvic abscesses originating in the cellular tissue. The incision must be made where the collection bulges out either on the abdominal wall or in the vagina ;

(*b*) For the opening of primitive peritoneal collections, either acute or subacute, or following post-operative peritoneal infection, of a post-abortive post-*puerperal* or gonorrhoeal origin ;

(*c*) For the opening of suppurated hematocele ;

(*d*) Owing to better vaginal antisepsis and especially to better means of drainage, the mere incision has gained ground in the treatment of pelvic encysted abscesses of the appendages.

In those cases it can be applied safely and efficaciously only when the cavity is unilateral, thin walled, easily fluctuating, lying low by the side of the uterus, or can be brought by pressure on the hypogastrium in contact with the vaginal wall.

Its best indication is found in the acute ovarian or tubal suppurations, when the general state of the patient and the exalted virulence of the pus counter-indicate immediate laparotomy or hysterectomy.

This expectant operation gives the best immediate results and insures final cure much oftener than might be supposed at first.

The failure of the vaginal incision betrayed by the persistency of a purulent fistula or recurring suppuration does not prevent the success of ulterior vaginal hysterectomy.



## III.

Laparotomy and vaginal hysterectomy as applied to the treatment of pelvic suppurations are not rival methods; they both have their indications and advantages.

The indications of laparotomy are ruled by the consideration of the unilateral seat of the lesions. When the patient is young and whenever there is any doubt as to the bilaterality of the lesions, laparotomy, which affords the sight of the opposite side, is to be selected.

This consideration especially important in case of non-suppurated adnexial diseases, loses part of its value in case of suppurated diseases. When one of the sides suppurates, the opposite side is seldom free from lesions of a dangerous future character.

The diagnosis must tend to determine as accurately as possible the uni- or bilateral seat of the lesions.

Laparotomy should be selected in case of doubt as to the nature of lesions (possible existence of an ovarian simple or dermoid cyst or of extra uterine gestation). However the matter is generally settled in such a case by the fact that the collection is unilateral.

In the cases of bilateral lesions, when there is any doubt as to the two operations, the situation of the two purulent sacs in regard to the uterus and the vaginal culs-de-sac becomes a leading factor in the indications.

To be treated by laparotomy are: the sacs in a high position, adjacent

to the fundus and horns of the uterus, distant enough from that organ and the vaginal cul-de-sac to allow the womb a certain freedom of motion, when these sacs are rather abdominal than pelvic, not surrounded by thickened and indurated tissues, and not having caused repeated pelvipertoneal inflammations. In such conditions laparotomy can easily de-corticate and pediculate the purulent sacs. Their accidental and premature opening during a vaginal hysterectomy may give rise to acute peritoneal infection caused by the soiling of the intestines among which they lie and which are not protected by old organized adhesions.

With exception of these restrictions founded upon the unilateral seat of the lesions, uncertainty about the nature of this lesion, the high position of the purulent pouch, vaginal hysterectomy applied to the treatment of pelvic suppurations:

1. Can accomplish what laparotomy would: it allows the pus tubes, the small pyosalpinx the suppurated ovaries to be removed.

2. It allows us to reach and cure lesions against which laparotomy is either powerless or too dangerous.

Alone it allows the opening and drainage of the purulent collections included in appendages matted with the neighboring parts or circumscribed by adhesions, separated from the main peritoneal cavity by solid and organized tracts, a real fibrous process, for which, in laparotomy, sight is powerless and every attempt at enucleation dangerous.

It is the method to be selected in the treatment of large adherent sacs, which cannot, or can hardly be enucleated, complicated or not by fistulae.

Better than any other method, it can cure the chronic suppurations of the periuterine cellular tissue left to their spontaneous opening, and most often communicating with neighboring organs.

In these cases, the operation must almost always remain merely evacuating; the ablation of the uterus is an ideal drainage owing to which the collections are emptied, cleaned and dried. In this circumstance, insisting upon the extirpation of the sac, would be removing from the operation all the advantages of its simplicity and benignity, and failing to recognize one of the principle roles of vaginal hysterectomy in the treatment of pelvic suppurations.

#### IV.

The immediate operatory results from laparotomy could no longer be invoked as an argument in favor of that method; the successful proportion by the vaginal operation has been lately considerably increased.

Vaginal hysterectomy holds its ground for lesions against which laparotomy would be powerless or dangerous. In simple cases hysterectomy is as, if not more, successful, than laparotomy; in dangerous cases, it is more successful and more innocuous.

In the treatment of pelvic suppurations, the ablation of the uterus must be taken seriously into consideration in order to insure immediate and final success.

A good many laparotomists recognize nowadays its necessity, and perform through the abdomen the simultaneous ablation of the appendages and of the uterus.

This ablation insures firstly a perfect drainage of which the marvelous efficacy is the most probable cause of the great innocuousness and extreme simplicity of the operatory consequences after vaginal hysterectomy; secondly it prevents the future troubles which may be brought about by the uterus if left in situ; such as; pain, metrorrhagia, purulent discharges, persisting or repeated infection of the pelvic peritoneum, against which secondary vaginal hysterectomy used to be often needed. Thus, immediate cure is more common and distant results are better.

The general troubles following the suppression of menstruation seem less marked after the utero-adnexial castration than after the mere ablation of the adnexa.

On the whole, in most cases, not coming under the mere incision, vaginal hysterectomy is the most excellent method of treatment in pelvic suppurations; and laparotomy is performed only in counterindications of the aforesaid.

**The Treatment of Eclampsia.**

JOHN W. BYERS, M.A., M.D.,

*Professor of Midwifery, Queen's College, Belfast.*

## ABSTRACT.

Professor Byers (Belfast) defined Eclampsia as that condition in which convulsions arose suddenly during pregnancy, labor, or after delivery. He excluded those cases in which fits occurred in a pregnant epileptic, or when they arose from gross intracranial disease. While the etiology and pathology of Eclampsia were still obscure he directed attention to a change of opinion amongst British observers on two points.

1st.—The extreme view, that the convulsions in all cases were due to renal disease, is being abandoned.

2nd.—Much greater importance is now attached than formerly to the influence of the fœtus as a factor in the causation of fits.

Taking everything into consideration, the most probable hypothesis was that the convulsions were due to the influence on the nervous system of a poison which arose as a product of ordinary tissue metabolism (elaborated in part by the mother and also by the fœtus), and which in ordinary cases, provided it did not accumulate in too great an amount, and that the eliminating organs were working properly, was got rid of without any ill effects. When, however, these organs got too much to do, as when the muscular efforts of labor increased the work of the kidney, then the poison was not excreted and its increased accumulation affected the nerve-centres;

or the same thing might occur if the function of the eliminating organs was interfered with, as in constipation, or when the kidney is in that condition which Leyden has described as being peculiar to pregnancy, or when there were changes in the renal organs and liver in the form of a parenchymatous degeneration, produced, it may be, by the poison in its circulation through them. Accepting the above explanation as a working hypothesis, he considered the treatment of Eclampsia under the following heads:—

1. How can the convulsions be best treated?

2. How is the poison which causes the fits to be got rid of?

3. What is the best way to manage a patient from an obstetric point of view?

4. When certain symptoms set in which make us suspect the onset of Eclampsia, what is the prophylaxis?

All these questions are very fully considered, and while every case of Eclampsia is to be treated *per se*, the following methods were recommended:—

1. The convulsions should be treated with morphia (hypodermically). The patient is to be placed on her side, to prevent the entrance of fluids into the larynx and lungs, pulmonary oedema being a common cause of death in Eclampsia. Care

should be taken that she does not injure herself, she should be kept warm, purged freely, allowed no liquids, and accordingly as she is conscious or not between the fits, a warm or vapour bath should be used.

2. Efforts should be made to eliminate the poison by purgation, hot baths, keeping the patient warm, and by the non-administration of liquids.

3. If labor has not set in, the convulsions are to be treated, but premature uterine action should not

be induced. Where labor has begun, and the patient is in the second stage, chloroform should be administered, and delivery rapidly completed. In the first stage, with strict antiseptics, labor may be expedited by the hot douche and by the use of Barnes' or de Ribe's bag if the cervix is dilatable. If the cervix is rigid, this should not be done.

4. In the prophylaxis of Eclampsia, rest, milk diet, purgatives, and warm baths give the best results.

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DR. VEIT LEYDEN.

#### CONCLUSIONS.

1. It is impossible, with the actual data to recommend one single treatment for Eclampsia.

2. Many cases are cured by any treatment.

3. It is not yet proved that "accouchement forcé" brought on in a deep narcosis (Dilation of the parturient canal by india rubber bags incision, caesarean section) can make the prognosis better.

4. We have not enough cases treated by bleeding, to be able to draw conclusions on that treatment.

5. The systematic treatment by large doses of morphia seems to give the best results.

6. As long as the pathology of Eclampsia is not better known, there is not, I believe, any rational treat-

ment. Very likely this disease has various causes.

7. The combined treatment seems to give the best results i. e., to accelerate prudently the labor, rupture the membranes, deliver after complete dilatation of the soft parts, to use large doses of morphia, which diminishes the number of fits, avoid the administration by the mouth of medicines to unconscious patients, induce diaphoresis, by external means.

8. There is no reason to look upon Eclampsia as being so very dangerous by itself, that we should recommend operations which require an exceptionally skilful hand.

9. In exceptional cases only we must have recourse to great operation.



PROF. F. HALBERTSMA, (UTRECHT).

#### CONCLUSIONS

In the therapeutics of Eclampsia, the most important question seems to me to decide, whether, at the termination of the pregnancy, or at the beginning of labor, we must wait, or accelerate the labor. I will limit myself to this question?

In the cases mentioned above, the active interference of the physician is usually indicated:

1. When the prognosis seems very serious, on account of complete anuria, or of the frequency and intensity of the convulsions.

2. When nothing shows that the labor is about to begin.

3. When, the labor having be-

gun, the particulars of the case lead us to expect it to be difficult and tedious, as it is for primiparæ, where the patient is aged, when the pregnancy is multiple, or the pelvis is narrow.

The active interference must not be postponed till the pulse has become frequent and feeble, although, even in such conditions, a favorable result may be obtained.

At the end of the pregnancy the physician should prefer the cesarean section.

In the beginning of labor, he makes deep incisions in the cervix, or uses Dührssen's method.

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DR. CHARPENTIER, (PARIS.)

#### CONCLUSIONS

1. Every albuminuric pregnant woman being exposed to Eclampsia, and milk diet giving marvelous results in albuminuria, we must very carefully examine the urine of pregnant women, and, when we find albumen in it, even in minute quantity, we must at once begin the exclusive milk diet. This is the "par excellence" prophylactic treatment of Eclampsia. When the women have œdema without albuminuria, it is advantageous, if not absolutely necessary, to prescribe milk diet.

2. Whenever we see an eclamptic woman, if the patient is strong, and cyanotic, we must first bleed her to 300-500 grammes, then use the chloralic medication, as it is said in the

report, and give her milk by the stomach; when it is necessary with the stomach tube.

3. Treat the fits by inhalations of chloroform and set up diuresis by hypodermic injections of artificial serum.

4. If the patient is delicate, if the cyanosis is but slight, if the fits are not frequently repeated, the chloralic medication will suffice.

5. We must wait until the labor begin spontaneously and let it go undisturbed whenever it is possible.

6. When the labor having begun spontaneously, the case does not terminate by itself, on account of the contractions being too feeble or too

slow, we must deliver the patient by application of forceps or by turning, followed by extraction, when the child is living; by cephalotripsy, basiotripsy or cranioclasia when the child is dead.

7. We must wait without performing such operations till the state of the maternal parts (full dilatation or at least dilatability of the cervix) permits us to interfere harmlessly i. e. without violence, consequently with-

out danger for the mother.

8. We must induce the labour only in exceptional cases.

9. Cæsarean section and "accouchement forcé" are to be absolutely rejected as usual methods for the treatment of eclampsia. We must have recourse to these operations only in case of failure of every medicine and when the mother seems on the point of dying; in short we must keep it as a last resource in desperate cases.

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DR. L. MANGIAGALLI.

#### CONCLUSIONS.

1. The preventive therapy is extraordinarily advantageous, removing those conditions which are probably the expression of the gravidic auto-intoxication and the greater becomes the sphere of these conditions, the more advantageous it is, including before all, the albuminuria, especially in the primiparæ, but also besides many gastric, sensory, and nervous, disturbances. The milk diet assisted by the means capable of disinfecting the intestinal contents, of increasing the diuresis, of improving the functions of the skin, of stimulating the action of the heart: constitutes the sovereign remedy against eclampsia in the virtual state.

2. The medical treatment, whether represented by blood-letting or by drastic means, by morphine, by chloral, by chloroform, by veratrum viride, or by diaphoretic means, is a treatment essentially symptomatic, rather than a true and real medical treatment of the disease. It consti-

tutes in every case the only possible treatment in eclampsia post-partum and is a precious help in expectation of the conditions permitting obstetrical intervention. Blood-letting followed by subcutaneous or endo-venous injections of physiological solution of chloride of sodium is a therapeutic method which rests on rational considerations and has clinical facts in its favor, but these are too scarce up to the present to allow a just judgment.

3. The prompt evacuation of the uterus constitutes the most important point of the treatment of Eclampsia, but it must be of course in relation both with the gravity of the case and with the dangers of the intervention.

4. In Eclampsia intra-partum it is a good rule to finish the accouchement when the permitting conditions exist and to anticipate these by means of several incisions of the cervix, when it has disappeared and the dilatation is not sufficient.

5. In case of Eclampsia in pregnancy, are indicated: the induction of labor by means of the rupture of the membranes, and the administration of morphine or of chloral or of veratrum viride in strong doses, the more useful, as they are administered sooner after the bursting of the convulsions, till the conditions indicated in No. 4 exist. If the case is serious, the danger imminent, and if in spite of the rupture of the membranes, associated with the indicated means, there is no hope of a possibility of temporization till disappearance of the cervix and incipient dilatation,

if the neck of the womb is shortened and softened, the forced dilatation can find, in my opinion, a more ample and easy application than deep incisions à la Dührssen. In the cases of the same category where the cervix is not prepared or conditions exist which render the mentioned intervention particularly difficult or counterindicated, the Cesarean section can find its justification, especially when the fœtus is at term and living.

6. Every intervention must be made in deep chloroformic narcosis.

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DR. N. CHARLES OF LEIGE.

#### CONCLUSIONS.

1. Puerperal Eclampsia is not a morbid entity, not any more than children's Eclampsia; like the latter malady, it has various causes, and it is more or less serious according to its various origins.

2. This syndrom may have a reflex nature; it can also be the result of a circulatory trouble according to Traube-Rosenstein's theory; but its cause lies oftener in an intoxication of the blood and tissues (toxæmia), resulting usually from accumulation in the system of many waste products (Toxines) which are normally eliminated by the excretory organs (kidneys, liver) whose functions are perverted or fettered owing to various lesions.

3. In most pregnant women, there is in the normal state some similar intoxication, as notwithstanding the increased assimilation, the urine contains less urea... etc. than in the non pregnant state, this is the ordinary gravidic autointoxication.

4. If the kidneys, the liver, etc.

are diseased, if their functions are irregular, the toxic overcharge is so much more marked; it can induce serious accidents, amongst which Eclampsia is one of the most important.

5. Some other serious accidents may come (dyspnœa, coma, paralysis etc.) and cause death: I place these under the heading: Defaced Eclampsia.

6. Toxæmia caused by disease of kidneys which is the most common goes most commonly together with albuminuria and œdemas. We cannot consider albuminuria as the cause of puerperal Eclampsia but simply as a morbid symptom having the same origin.

7. Experience tells us that, in most cases, toxic Eclampsia comes out suddenly in more or less albuminuric patients, frequently highly albuminuric whose cellular tissue is much œdematous (infiltrated).

Therefore this (albuminuria) is a premonitory sign too important to be

overlooked. It must in my opinion, be the object of the careful attention of the physician, the more so, if the patients presents oedema of the lower limbs, hands and face.

8. My statistical reports show:

A: There is one case of Eclampsia out of 151 deliveries, the mothers die in the proportion of 24.42 per cent. and the children in 41.83 per cent.

B: There is one eclamptic patient out of 92 primiparæ, only one in 373 multiparæ; but the death rate is higher amongst the second (27.65 per cent. against 23.37 per cent.

C: Eclampsia is much more fatal during pregnancy and labour than after confinement (27.73 per cent. and 3 per cent).

D: There is one albuminuric patient out of 40 women confined (1 out of 25 primiparæ and 1 out of 75 multiparæ); out of 4 albuminuric women 1 is seized with eclampsia (1 out of 35 primiparæ and 1 out of 7 multiparæ.

E: Eclampsia without albuminuria is seldom observed (1:9). In my observation it burst out after confinement: all my patients recovered.

F: Albuminuria alone (without Eclampsia) very often is attended with various accidents more or less serious, even lethal, on 110 cases there has been 8 mothers dead, 20 children dead, 61 deliveries before term, 8 post partum hamorrhages; 3 times convulsions were threatening.

9. Medical treatment has only a secondary importance in serious toxæmic Eclampsia, coming during the pregnancy and confinement. The drawing out of more or less toxic liquids, with purgatives, diaphoretics, bleeding, followed by or added to their replacement by various ways (stomacal, rectal, hypodermic,

intravenous) for the purpose of making a washing or a disintoxication of blood and tissues has only a doubtful action.

10. The sedatives of the nervous system the most used (chloroform, morphia, chloral) have a positive but not essentially curative effect.

11. Termination of the delivery is in all cases desirable and must be quickly done in serious cases. Therefore from the beginning of the fits we must act in that direction: i. e. stimulate, when necessary and always accelerate the labour. In very urgent circumstances, we must not hesitate to dilate the cervix (with the fingers; incisions, hydrostatic or metallic dilators) to extract the child without delay. If this "accouchement forcé" is difficult too slow, or impossible without too much wounding, we must have recourse to cesarean section.

12. Post partum Eclampsia is without danger in most cases and calls only for moderate doses of sedatives.

13. Prophylactic treatment is the foundation of the treatment of puerperal convulsions. It includes first the usual hygiene of pregnancy, especially the keeping in good order of the excretory organs (bowels, skin, kidneys) then and principally the examination of urines and the research of albumen.

14. Every pregnant woman, when albuminuric, must undergo a regular treatment, more or less severe, whose milky diet is the foundation.

15. In case of failure or of urgent danger, the indication is to induce artificially the premature labor; it gives the best results. My statistic table shows that every mother recovered and 75 per cent. of the children were saved.







Fig 1.

# DEPARTMENT OF PÆDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

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## Original Communication.



### A CASE OF ANENCEPHALIA.

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EDWARD L. TWOMBLY M.D.

*Visiting Physician to Boston Dispensary : Gwynne Home for Children : Surgeon to  
O. P. D. Saint Elizabeth's Hospital, Women's Department.*

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MRS. M. came to me on December 17th, 1894, with the following history :

Both she and her husband were French Canadians, born in the northern part of New York, both thirty years old. She had her first baby in June, 1894, which died of Meningitis when a year old. The second baby was born in March, 1894, and it also died, a year later of Bronchitis. Menstruation had ended on April 26th, 1894, but she could not give the date of quickening. She had been very nervous and excitable, and suffered much during her other pregnancies, but she felt well and had gotten along finely with this one. She had been told that she had Diabetes, but repeated examinations of the urine failed to show it.

The urine was acid, sp. gr. 1.025 st. trace of albumen, no sugar. Sediment. Increase of leucocytes, few hyaline casts. This slight trace of

albumen persisted, even after her confinement. The casts were few and not always found.

A short time before the expected termination of pregnancy, examination showed the foetal head above the umbilicus, free movements, foetal heart not heard, os not patulous, patient in good condition.

Contrary to my expectation, I was not called until March 20th, 1895, or forty-nine days over the estimated 280 days. Pains began at 7.30 A.M. Os fully dilated at 12 M. Membranes ruptured at 1 P.M. No hydrannios. Face presentation. It was not until descent ceased with the face just showing at the vulva that the lack of cranium became evident and that a diagnosis was made.

The pains continuing without effect, labor was terminated under ether, and with considerable difficulty, very large shoulders and hips were brought through the passage, and a girl baby,

which was very well developed and perfect in every respect except the head, was born.

The placenta was expressed by the Crede method, and the woman made an uneventful recovery afterwards.

Although no special means were used to preserve the life of this being, it continued to live, and in the evening was taken over to the Children's Nursery, wrapped up in a shawl. It lived until the next morning, or sixteen hours in all, and during that time took nourishment by the mouth.

The accompanying photographs give a better idea of this monstrosity, than any description can.

Number I. shows the shape of the head, the flattening back of the protruding eyes, the great development of fat, and its general features.

Number II. shows the relative size of the head to the body (which is supported by a short stick in the middle of the trunk.)

This case is interesting in several ways :

*Firstly.* Because of the length of pregnancy. Even if we allow an error of twenty days, supposing that conception did not take place until just before the next period, there is still an increase of twenty-nine days. In other words, it took just so much longer for this fœtus without the cranium, to reach its completed development and size (similar to that of a well-formed child) before the uterine irritability was increased sufficiently to set in motion the natural phenomena of labor.

*Secondly.* This case is not so common but that it deserves more than a passing notice. Anencephalia occurs more frequently with the non-closure of the upper portion of the spinal-canal. In this case, it was entirely closed to the cranium. The child was perfectly developed in every way except for the cranial vault and its contents. What weight was lost by the malformation of the head was made up by the abundance of fat that covered its body everywhere from one-half to an inch in thickness. It weighed 3100 grammes.

*Maternal Impressions.* While the profession do not generally accept the popular belief that children can be marked or deformed by impressions received by the mother, yet there is a growing opinion that sometimes such impressions are made, and the number of authentic cases reported swell that belief. In this case, I could get no history of any such impression produced. After the birth, the mother on being closely questioned, said that she had a very hot-tempered domestic who lived with her when she was between three and five months pregnant, and that many stormy scenes arose, and on one occasion, that amiable domestic had for half an hour cursed her and her unborn child. Further than this, she had had no sorrow, neither had she seen any horrible malformations or accidents. I asked if any animal had annoyed her, a frog for instance (as this monster is often designated as the "frog-faced child") but received a negative answer. She did not see







Fig. II.

the child after its birth.

I have purposely omitted an exact description of the deformity thus far, for it is so well given in the following report.

The autopsy was kindly made by Dr. Arthur H. Wentworth, and I am under deep obligations to Dr. Edward W. Taylor for the microscopical work and report which thus completes this very interesting case.

*Autopsy.* Female child, perfectly well-formed with exception of head which is very small relatively to the body. Greatest circumference 27 centimetres (normal 34). Distance from tip of one ear to the other 10 cm. Base of nose to occipital protuberance 9.1-2 cm. Length of body 50.5 cm. (normal 50 cm.), circumference of chest 34.5 cm. (normal 31 cm.) At crest of iliaes, 26 cm.—Thick coating of fat over whole body. Skull from level of eyes backward is absolutely flat. Scalp closed in completely and fairly provided with hair with the exception of a circular space over which the skin has not grown. This space measuring 4x4 cm. is covered by a thin membrane, under which lies a mass of soft tissue, which bears no resemblance to normal brain structure. Spinal canal entirely closed in. Length of spinal cord 16 cm. On dissecting skin of scalp, the cranial cavity, very shallow, is shown not covered in by bone, evidently through lack of development of parietal and occipital bones. This aperture measures 2x2 cm. and represents, so far as an analogy is possible, the foramen magnum of an adult.

No brain cavity. Absence of *all the calvarium*. Spinal cord was intact but its dimensions were smaller than normal. At its upper end is a swelling which without doubt is the medulla oblongata. It is possible that the upper parts of the medulla were injured in removal, and existed in more perfect form than would appear—this fact bearing out the length of time which the child lived. Bones of spinal column and skin covering in the back are normal. Internal organs normal.

The case is therefore to be regarded as one of "Anencephalia et Acrania."

*Microscopical Examination.* (Sections made from various heights and stained chiefly for myeline.)

*Spinal Cord and Medulla.* The entire cord and medulla on cross section are approximately one half the size of that portion of the normal central nervous system at birth. Neither present malformations excepting in the fact that certain fibre tracts (to be described later) show a striking lack of development. The nervous system is chiefly defective at the anterior (upper) portion of the primitive neural tube—the anterior cerebral vesicles.

The central canal is represented by a slit-like opening in the medulla with its long diameter extending antero-posteriorly. The canal of the cord is patent and properly lined, as is that of the medulla, with epithelium.

*Spinal Cord.* Both anterior and posterior nerve roots are of normal

appearance. The anterior horns are well supplied with ganglion cells. The collaterals and myeline fibres of the gray matter are somewhat deficient in number.

Most striking is the imperfect development of the antero-lateral columns. Although the cross-section is not unsymmetrical, yet the gray matter approaches considerably nearer the lateral periphery than would normally be the case. The fibres in the area of the crossed pyramidal tract are in great measure lacking. This deficiency extends ventrally in the area occupied by the antero-lateral ascending tract.

*Medulla.* At the lower level of the motor crossing, the appearances already described in the cord are still more accentuated. A very few fibres may be seen crossing anterior to the central canal, in the position of

the motor tracts.

It is possible that a small amount of cervical substance may have been present and escaped observation at the autopsy. If so, the presence of these decussating fibres may be explained—otherwise we must suppose that the fibres do not belong to the motor system, a possible alternative. The entire antero-lateral portion of the cord is deficient in development, the myeline staining imperfectly or not at all, in striking contrast to the well-defined sheath stain of the posterior sensory tracts. The sensory decussation is, however, imperfect and irregular.

It must be remembered that normally at birth the motor (pyramidal) tract is in great measure devoid of myeline sheaths. In the present case, the appearances are much more marked than would ordinarily occur.

There is, as was to be expected, a deficiency of cortico-spinal fibre tracts.  
406 MASSACHUSETTS AVE.



## Society Notice.

The attention of our subscribers is specially called to the circular sent out by the committee of the American Pædiatric Society. Keep full notes of your cases and report them promptly to the chairman.

"The previous committee having been continued by the Society, proposes, in its second circular to ask the co-operation of physicians in applying the final test to the specific action of Diphtheria Antitoxine in private practice. The present aim is to ascertain—

(1) What percentage of cases of *laryngeal diphtheria* recover without operation under antitoxine treatment; (2) What percentage of operated cases recover; (3) The frequency of

sequelæ. The collection of cases is to extend from May 1st, 1896, the date of the closure of the first report to April 1st, 1897. Further blanks will be furnished to all wishing them, on application to the chairman of the committee; and printed reports will be sent to those contributing cases.

It is requested that these blanks be returned to the chairman as soon as filled. The returns must close April 1st, 1897.

*Signed,*

S. S. ADAMS, M.D., President.

J. EMMET HOLT, M.D.

JOS. O'DWYER, M.D..

WM. NORTHRUP, M.D., Chairman.  
57 East 79th St., New York City."



# ANNALS OF GYNÆCOLOGY AND PÆDIATRY.

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## ORIGINAL COMMUNICATIONS.

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### THE TREATMENT OF ECLAMPSIA.\*

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BY PROF. L. MANGIAGALLI.

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GENTLEMEN :—

The Committee of Arrangements of this Congress, putting in discussion the question of the treatment of eclampsia, this *genua mortis*, as it is called by ancient writers of obstetrics, has claimed your attention to one of the most debated arguments and still regarded in like manner among obstetricians, that profound pit which indeed divided them in the past century and in the first half of this.

In this second half of the century, in the treatment of eclampsia, we have as new means: anæsthetics and the hypodermic and intra-venous injections of the physiological solu-

tion of chloride of sodium: since the use of blood-letting, of drastics, of diaphoritics, of the opiates, and the opportunity for obstetrical intervention, we have now these discussions which have animated the obstetricians for fifty years or more. And yet it seems to me opportune that this discussion may be debated now in this distinguished Congress in which renowned obstetricians of all the world participate, not only because some diffusion of light may clear up better the origin of this disease, not only because some of the curative means indicated can be studied and applied to the objection of new criticisms, but because at least, some one side of this vast and complex problem, it is probable, may find a satisfactory solution through the great mass

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\* Read at the Second International Congress of Gynæcology and Obstetrics held at Geneva, Switzerland, in Sept., 1896.

of facts gathered with the same incentive. It is not sufficient to say that it is not possible to discuss concerning the therapy, if first the cause of the disease is not known, that one wishes to cure. The clinic offers us not a few examples of diseases which are cured with the best results although their nature is unknown, and on the contrary, examples of diseases the therapy of which is symptomatic although their genetical factors are exactly known. On the other hand the objective study of the therapeutic results per os and what are deduced from an impartial observation can lead on to conclusions which may have the sanction of the practice, when even the cause and inmost essence of the disease may not yet be revealed to us.

If we run through the ancient Italian obstetrical literature, and that relatively more recent, we see how it viewed the dominating ideas upon the origin of eclampsia; but at the same time we observe how it allows us to judge as much that the clinical observations may not be overcome, as that an absolute and one-sided therapeutic system cannot be instituted. Then the great hope when the early and forced interference of science found few adherents, but neither one nor the other are forbidden, while the principle of the opportunity to empty the uterus as soon as it is possible to do it without violence, but a little too soon than too late, receives nearly universal commendation.

And in the field of curative medicine while blood-letting was received

with more worth, and never quite lost its demand, and the drastics were universally employed, the opiates vaunted by Asdrubali at first, sharply combatted by Pastorella toward the middle of this century, morphine and atropine used for example five years or more by Casate, Bignami, Tibone, caused greater discussion, received less general application, whilst with greater enthusiasm, a little later, chloroform and chloral were received.

I. Now if we pause to make a rapid summing up of the treatment that the Italian obstetricians employ in eclamptic convulsions, we are able to affirm that bleeding has lost much ground, that the drastics, anæsthetics and morphine here and there, the subcutaneous and endovenous injection of the physiological solution of chloride of sodium occupy the first place in the medical treatment, and that there may be more advantage in obstetrical interference, since in the miscarriages, the incisions of the cervix precede frequently the application of forceps or version. In the full term woman, the provocation of the expected birth to increase the possibility of saving the woman, and on the part of some obstetricians they not only instruct but also further the tendency to proceed to the rapid delivery of the woman even with the uterus neck unprepared.

If, in unfolding this argument, I narrate some studies, observations and experiences made in Italy, since it has as much as is found elsewhere, you will admit that this is not only my duty, but is what was ex-

pected from me by those who wished to honor me with the position of orator because just as the speakers are numerous every paper pictures the idea and nearly the national experience in such argument.

Now one question that above all comes up is the following;—

Are we able to affirm that the mortality of eclampsia is today less than formerly, after so great an extravagance of theory, after so great an excess of experimental studies, after so great progress in the dominion of science, after the acquisition of those precious therapeutical means as are the anæsthetics and antiseptics?

The response is not easy to give in Italy any more than elsewhere. It cannot happen any more from the large numbers, which alone are able if not to blot out, to attenuate the cause of the error.

It is incredible, the illusion created upon this point by limited statistics. In running over the literature of this question, how many writings have I gone through of authors that did not hesitate to affirm after the observation of three or four cases treated under a given treatment that the therapy followed is that which undoubtedly ameliorated the prognosis of this affection.

However, an experience extending over a long period of years confuses every more just prevision in the proposition.

In 38 cases which I have observed, for example, in a period of seven years, I have a series of 10 cases comprised in a period of more than two

years from June, 1891, to Oct., 1893, all followed by recovery, while in October and November, 1889, I had three cases and three deaths, and in such a period of seven years, the cure must be judged by the critics themselves.

To demonstrate how careful we should be in certain conclusions, I have reported the statistics of the results obtained with chloral. In 1872 there was a mortality of zero, in 1888 it was reported by Charpentier as 4 per cent, but in 1891 it rose to 16.50 per cent. It is thus that the results of many statistics are incorrect, or perhaps many of these are reported with a preconceived idea of proving that chief theory which has guided them in the therapy, or to combat a different idea, which leads us afterwards to too fine selections and eliminations not always correct of fatal cases, either because they are scarce or because perhaps being numerous they refer to different observers and times.

The part of a critic ought to be extremely easy in this field, but it is enough for me to have put forth such an argument.

Let us resume the question if actually the mortality of eclampsia can be considered less at any former period. So long as the question remains in the general limits in which I have placed it, it is easier to consider the question objectively and to withdraw from the peril of sustaining a wearisome tendency. Löhlein wrote in 1881 that the affirmation

often repeated, that the prognosis of eclampsia was less must yet be demonstrated. Are we able to give such a demonstration today? The first few statistics Charpentier reported, that refer to chloral, might perhaps make us hesitate.

One of the difficulties of such a demonstration comes from the enormous oscillations of the mortality of eclampsia, being in some years at zero, as already I have mentioned, and in other years a very high mortality.

The mortality of the 2nd. Clinic of Vienna, from 1880 to 1895, oscillated between zero and 37.5 per cent. Another difficulty comes from the fact that at the same time we find statistics with the percentage of deaths high, and others low. These difficulties, however, are overcome, when we compare the large statistics, ancient and modern. An exact division of the results, for example, for the period of ten years, is not possible, because many statistics cover a large number of years, but it is probable that the statistics published from 1890 up to today show an evident progress: although, I repeat, even at first there are very brilliant reports, and exceptional, such as for instance that of Winekel (92 cases, *Lebrbuch der Geburt.*, h. 1889) of 7.7 per cent. From the ancient reports of

Mauricean mortality	45 per cent.
Lachapelle	50 " "
Devillier	55 " "
Velpeau	38 " "
Murphy	24 " "
Rambsbotham	16 " "

Merriman	"	23	"	"
Wieger	"	30	"	"

And that relatively recent of

Brummerstädt	37.7	"	"
Scanzoni	32.9	"	"
C. Braun	31.8	"	"
Spaeth-Schantz (1834 to 1880)	36.5	"	"
Litzmann	25	"	"
Olshausen (1885—91)	25	"	"
Dohrn	29	"	"
Goldberg (Sept. 1, 83—June, 91)	24.7	"	"
Lantos (1862—87)	28.3	"	"
Löhlein (Apr. 1, 1881—Oct. 1, 1890)	23.38	"	"
Zweifel (to 1892)	32.6	"	"
Dührssen-Gusserow 200 cases (Charity) from Jan. 1, 1880 to March 31, 1892.	21	"	"
Geuer (Colonia)	24	"	"

We pass to those recent ones of Zweifel (from 1892, 80 cases) mort. 15 " "

Aroback (47 cases from 1892)	14.8	"	"
Rosthorn (22 cases, Oct. 1—Mar. 1 1896)	4.5	"	"

The examination of the results above indicated placed in order of the chronological succession of the reports, leaves us the impression that the mortality may be diminishing. Such impressions become increased if we compare the results obtained in the clinics themselves in successive periods. I have drawn up in such a manner the comparisons one is able to make upon the large amount of material in the Clinics of Vienna, Leipsic and St. Petersburg. Thus in the 2nd Clinic of Vienna, from its foundation in 1834 to the end of June, 1895, in 42607 births there were 137 cases of eclampsia with 27 deaths,



that is, with a mortality of 19.7 per cent. It is easy to judge therefore how such a diminution may be owed quite necessarily to the results obtained in 1894, represented by only one case of death in 16 cases, and in the semester of 1895, five cases with no mortality.

In the clinic of Leipsic from Apr., 1, 1887, until 1890 there was a mortality of 32.6 per cent. from 1892 to 1895 the mortality descended to 15 per cent. In the maternity of St. Petersburg from Jan. 1, 1873, to Dec. 31, 1891, in 60583 cases there were 455 cases of eclampsia, with a mortality considered quite low, compared with that of other reports, of 17.3 per cent, but the mortality from 1886 to 1891 was 12.6 per cent. Löhlein, who in 1881 assigned to eclampsia the mortality of 35.7 per cent, ten years later in a critical examination of 52,328 pregnancies of German origin found 325 cases of eclampsia with 63 deaths from eclampsia, and 14 from complications, representing a mortality of 23.38 per cent.

Let us cast a glance at the substance of the Italian reports. In order to render possible a comparison of the present mortality with that of a less recent period, I have utilized some reports which refer to the Clinic of Pavia, to the Maternity of Milan, to the Obstetrical and Gynecological Division of the General Hospital of Milan, to three institutions to which I have belonged or taken part, deriving the knowledge from the registers of the first and third institutions, receiving the

reports of the maternity for the second.

In the Maternity of Milan from 1864 to 1880, with exclusion of the years 1871—2, there were in 5138 births, 288 deaths, and among these 39 cases of eclampsia with 14 deaths, with a mortality then, from eclampsia, of 36 per cent, in fact a general mortality of 5.4 per cent.

In the Obstetrical and Gynecological Division of the General Hospital from 1876 to 1886 there were 75 cases of eclampsia, four of these the outcome is not indicated, of the other 71, in 26 there was a fatal ending, with a mortality of 36.61 per cent. This mortality ought to be considered a little lower than the above in reality, because at that period of time, a tenth of the delirious eclampsies register as passed into a special ward, and of these, they have lost the trace respecting the final outcome. In the obstetrical Clinic of Pavia from 1819 to 1896 there were 164 cases of eclampsia with 15 deaths that is to say with a mortality of 23.43 per cent.

Such a low mortality in opposition to that of the other institutions, is very much the same for all the indicated period if we make allowance for the accidental oscillation, in given years. Instead, in the Obstetrical and Gynecological department of Milan, there was from 1888 to 1895, a mortality of 23.68 per cent., very much less than that reported of 36.60 per cent. from 1876 to 1886 in the same department, and

36 per cent. at the Maternity of Milan from 1864 to 1880. In the Italian statistics gathered by me of 371 cases which are all later than 1880, there was a total mortality of 21 per cent.

That there may be in general a diminution of the mortality of eclampsia in these late years, appears to me now well demonstrated from the statistics, at home and foreign. Certainly if there has been any progress it is not at all comparable to that we observe in other fields, in the domain of other menacing accidents of the life of the mother as in hæmorrhage of placenta previa and also in rupture of the uterus. But to what ought we to attribute such an improvement in the prognosis? It is difficult to estimate in the first place the influence that the introduction of antiseptics has had in diminishing the mortality of eclampsia, observing in every report how there is a percentage of deaths attributed to septicæmia. Searching the question if eclampsia predisposes to septicæmia in a special manner (Olshausen) or does not exercise such an unfavorable influence (Dührssen) it is certain that such an influence ought not to be large and is not easily determined. It is enough to reflect how in all the reports of the antiseptic epoch, considering the clinic and the operator himself, there were even for a few years or more, a very high mortality.

I cite that of Chroback in 1891 of 33 per cent., and the entire first

series of Zweifel with a mortality of 32.6 per cent. which happened in the five years of 1887-1892 and as such stands on a par with the high mortality of the many reports of the pre-antiseptic period. If we observe some of the ancient statistics we may see also how the mortality of eclampsia may be not at all notably modified from the oscillations of puerperal mortality. Not a few times we see a singular contrast between this and that report; as in the statistical table which refers to the obstetrical clinic of Pavia I find the mortality of eclampsia has been for example zero in a five years period, in which the general mortality was 9.40 per cent.

The consideration that albuminuria is a condition that precedes or often accompanies eclampsia, whatever may be the genetical rule of relation which we are able to give, and that against it we have a theosophy universally accepted as efficacious, milk diet and the interruption of the pregnancy, ought to be able to make us suppose that the frequency of eclampsia might be diminished or its intensity attenuated, when there is no aim to prevent it. An attenuation of the form of eclampsia, no clinic, it appears to me has had occasion either to observe or demonstrate.

Generally every clinic compiles in groups or series, the serious cases and those less serious of eclampsia, but this is an old observation and the classical picture of eclampsia remains unchanged. The impressions given us by the first cases observed more

than twenty years ago is identical with that observed in the last cases attended. Yet, nevertheless, I am able to affirm that eclampsia is diminishing in frequency. An opposed affirmation is less allowable. Peter had already stated that the cases of eclampsia were becoming more frequent, and taking the statistics of Depaul, which reproduce the cases observed in the Hospital of the clinic of Paris from 1834 to 1871 and dividing them in periods of ten years he had arrived at the following results:—

From 1834 to 1843, 17 cases.

1844 to 1853, 27 “

1853 to 1863, 35 “

1861 to 1871, 54 “

In the obstetrical clinic of Vienna the frequency of eclampsia represented from 1834 to 1880 is 1-380, that from 1880 to 1890 gives 1-311, and in the Maternity of St. Petersburg during the period of 1873 to 1880 is 1-151, that of 1881 to 1891 is 1-123, and in the four years 1880-1891 inclusive, it was 1-100. Such an increase in the percentage of eclampsia we find perhaps, although not in the same measure, in the Maternité of Moscow and in the Berlin Charité. This does not indeed demonstrate in an absolute manner that the frequency of eclampsia is on the increase, taking the greater number of such cases to be in relation to the changed or better organizations of the maternity institutions or to the changed conditions of the population, the changing of public opinion or to other factors:

in the same manner such a large number ought to be diminished by the organization of the sanitary service which lends prompt and efficacious obstetric assistance at the house.

When I reflect on the fact that at Milan in about eight years, counting the cases of the Obstetrical and Gynæcological Department of the hospital and that of the Obstetric Guards, there were outside of the maternity and of the official service of obstetric consultation, 109 cases of eclampsia, and considering the small per centage of eclampsia that occurred at the maternity in the preceding epoch, in which the services were not organized or were organized insufficiently (7 cases in the period of 5 years, 1875-79, of which I am the reporter), considering on the other hand the increase of the population, and the hypothesis of a real increase of the frequency of eclampsia does not seem to be endangered.

Such an increase is evident also according to the Clinic of Pavia.

From such an increase there ought not to be lessened the value of preventive therapeutics in eclampsia which appears to me to be founded on indisputable clinical facts, but ought to be concluded rather in spite of the more efficacious preventive treatment, that the causes which produce it are numerous and various.

To solve the problem better not only of the greater or less frequency of eclampsia, indefinitely of the external causes which are able to modify the large number of eclampsias in the

obstetrical services, but also the efficacy of preventive theraphy, one ought to consider a calculation for a long series of years of these cases that Löhlein has called repeaters, in whom that is to say the illness developed in patients that had already been relieved in the institution. A sufficient statistictal material which permits any deductions is lacking at present.

In the statistics of Bidder which refer to the Maternity of St. Petersburg, we see how from 1881-1892 in 41,177 births there have been 337 cases of eclampsia of which 87 were repeaters, that is 1-473. It would be interesting from this point of view mentioned to follow in the different clinics the oscillations of such percentage in comparison with the diverse circumstances and different preventative treatments which are able to modify these. In the obstetric Clinic of Pavia from 1883 to 1896 in 1,430 recoveries (they surpass the number of births because many of the gravid women cured of the sickness for which they had entered, left the Clinic before delivery) there were 98 with albumen and the three cases of eclampsia (repeaters) belong to those and therefore represent a percentage which nearly coincides with that of Bidder, *i. e.*, 1-476. At Milan in the Comparto Obstetric-Gynæcologies under my direction, in 1016 recoveries, from 1888 to June 30, 1895, there were 145: 37 of the 38 cases of eclampsia observed, belong to these, of which 2 were *repeaters*, in the proportion then of 1-508.

To demonstrate the comparison in eclampsies of primiparæ and multiparæ, the analysis and comparison of the cases of albumina and eclampsia, that I have observed or gathered either in the Clinic of Pavia or at the Hospital of Milan, is very interesting. That eclampsia is really found more frequently in the primiparæ, than in the multiparæ is known.

Braun assigned to the primiparæ with eclampsia the percentage of 86.3, Dührssen 84, Gener 84, Schauta 82.6, Chrobak 79.5, Zweifel 79.5, Brummerstädt 79.2, Lantos 78.5, Bidder 74.3, Olshausen 74. In Italy, Casati observed that in 29 cases, only three belong to multiparæ, saving Belluzzi, who in the 13 cases, observed seven belonging to multiparous women in his practice, I judge that the large number of primiparæ might be owing to the fact that the maternity institutions receive so many illegitimate pregnancies, in which primiparæ are more numerous. The observation made in the Ospedale Maggiore, where they receive legitimate and illegitimate if sick, and that of the Obstetric Guardia of Milan whose work is mostly among legitimate pregnant women, demonstrate that the prevalence of eclampsia in primiparæ is always marked. But is such a prevalence then relative, proportioning the number of eclampsias to the number of primiparæ and multiparæ recovered? Also that such a prevalence is evident is pointed out from the following figures:—



## PERCENTAGE OF ECLAMPSICS.

	Primiparæ Primiparæ delivered	Multiparæ Multiparæ delivered
Dept. Obstet. Gynecological Hospital at Milan	13.21 per cent.	1.65 per cent.
Obstet. Clinic of Pavia	2.36 " "	1.08 " "
Obstet. Guardia of Pavia	1.56 " "	0.68 " "
Complete Italian Statistics,*	1.60 " "	0.47 " "

The percentage of eclampsics observed at the hospital of Milan, enormous in the primiparæ and large in the multiparæ ought not to make us marvel, when one remembers that they receive there only (those pregnancies which are ill) but the comparison of the first with the second serves to put in greater evidence how much the primiparæ is disposed to eclampsia. Such a contrast is accentuated when we search the comparison between the eclampsics and the primiparæ with albumen, and the eclampsics and multiparæ with albumen.

In the Dept. Obstet. Hosp. Milan, in the reported period, there were 49 primiparæ with albumen with 23 cases of eclampsia (I exclude one of them because it refers to a case of eclampsia without albumen) and 94 multiparæ with albumen, with 14 cases of eclampsia. This stands then to the albuminous primiparæ in the proportion of 49.90 per cent., to the multiparæ with albumen at 14.89 per cent. In the Clinic of Pavia such a contrast is not so marked but not less evident.

In 1430 patients there were 980 with albumen of which 44 were primiparæ and 54 multiparæ. We had among these in the first 17, in the second 8 cases of eclampsia, so that

the percentage of cases of eclampsia to albuminous primiparæ was 38.63, while that of the multiparæ was only 14.81.

It is a percentage little different from that given by Vinay of eclampsia to albuminuria, namely 42 per cent with a table that embraces those of Blot, Devilliers, Mayer, Litzmann, Braun, Imbert, Gombeyre.

That does not indicate at all that albuminuria predisposes to eclampsia in the proportion mentioned, not alone because in the greater part of the cases of eclampsia albumen is looked for and found in the urine that *had not been examined before*, only at the moment of the attack of eclampsia, but especially for the reason that the serious cases coming to the Clinic, the cases of eclampsia that are admitted, represent a selection among many women with albuminuria who remain at home and they then increase the proportion in the clinic, between eclampsia and albuminuria. It would be then inexact to represent such a relation with the number of repeating cases. Since, while on one hand it is indubitable that in the large portion of the cases of eclampsia a diligent analysis of the preceding history reveals facts and symptoms such as are often associated with albu-

\* Dept. Obstet. Gynæc. of Hospital at Milan, Obstet. Guardia of Milan, Clinic of Pavia, Clinic of Firenze, Clinic of Parma. Others from other institutions and private practice, Maternity of Venezia, Clinic at Rome.

minuria, on the other hand it is true, and every clinic is able to substantiate it, that in cases tending to eclampsia, in which already exist evident premonitory signs, these are avoided by appropriate means, medical or obstetrical. The small percentage of repeating cases of eclampsia would be of less importance to indicate to us the efficacy of the preventative means. If now the present studies render less probable a causal relation between the condition of the kidneys and eclampsia, such a relation does not cease to be intimate, as well as important clinically; also rendering the hypothesis which attributes both to the same agency, much stronger, whether this is considered as a ptomain or more probably, intermediate products of changed materials.

This is important from the point of view of preventive therapy, since one ought to be watchful and in readiness in every case of albuminuria and especially respecting albuminuria in primiparæ.

Such preventive therapy will be to my mind so much more beneficial and efficacious if it will not be guided and determined only by the albuminuria, but by all those conditions and symptoms which demonstrate deficiency of the renal function; especially if insufficiency, of the heart, or that which tends to intoxication of the pregnant organism, accentuated sympathetic disturbances, diminution of the urine or of the urea secreted, persistent vomiting, headache, nervous irritability, physical disturbances, etc. etc.

*(To be concluded in December number.)*



## THE DIFFERENTIAL DIAGNOSIS OF SHOCK, HÆMORRHAGE AND SEPSIS.

BY EUGENE BOISE, M.D.

GRAND RAPIDS, MICHIGAN.

It may be that there is no necessity for taking the time of the society in the consideration of conditions so well understood, but lives have been lost because of the difficulty in making a correct differentiation between these conditions, and if by the discussion which this paper may be the means of introducing any additional point of value may be brought out, I shall feel that I have not taken your time in vain.

There does not seem to be an universal clearness, if I may so express myself, as to what shock is, many thinking that the term shock, as used in abdominal surgery, implies directly or indirectly, hæmorrhage. But while shock may be complicated by hæmorrhage, the two conditions are in reality absolutely distinct. Shock in no sense means hæmorrhage nor does hæmorrhage imply shock. Shock is a profound irritation of the entire sympathetic nervous system whereby certain symptoms are produced, the final or collective manifestation of which is profound mental and physical depression. In its pathology there is no question of hæmorrhage. It is primarily and absolutely a nervous condition; hyperirritation of the

sympathetic system with secondary depression of the cerebro-spinal.

Hæmorrhage may produce symptoms similar to those of shock with cerebro-spinal depression, but this condition should properly be termed syncope or collapse. Hæmorrhage may be, and often is complicated by a certain amount of shock; as shock may be accompanied by hæmorrhage. But it is our province today to consider these conditions uncomplicated.

I have said that they may give rise to very similar symptoms, so similar as to be often confusing to the best diagnosticians. Such symptoms are briefly, pulse, small, often almost imperceptible, very rapid and of very low tension; breathing slow, sometimes sighing; temperature low, frequently sub-normal; urine, scanty. These conditions may exist in equal severity in both shock and rapid secondary hæmorrhage. But their production is from very diverse causes, and for their successful treatment these causes should be differentiated.

How then can we recognize them, how distinguish between shock and rapid secondary hæmorrhage?

I speak thus of *rapid* hæmorrhage,

as this is the only form that can be confounded with shock. Also because there is another form of secondary hæmorrhage whose symptoms more resemble sepsis than shock. That is slow hæmorrhage from a small artery, the loss of blood being so gradual that the system can, to a certain extent accommodate itself to it.

Between shock and ordinary secondary hæmorrhage there are various points of distinct difference: but our main reliance for diagnosis must be the pulse: all other symptoms are simply corroborative.

In shock the pulse assumes the characteristic nature before the patient leaves the table. It may become more rapid and smaller after the effects of the anæsthetic have passed away, but this is not the rule unless the condition is aggravated by improper treatment. In shock then, the pulse becomes at once very rapid and very feeble. In hæmorrhage this condition is *always* gradual in its approach and is never perceptible till some time after the close of the operation. The pulse of shock tends to improvement if not aggravated by improper treatment. The pulse of hæmorrhage invariably grows gradually worse.

We make then the pulse our keynote in the differentiation of shock and hæmorrhage. But to do this properly and successfully it is necessary, above all things, that the operator shall study the pulse himself, placing no reliance on the

chart. This implies that he shall study carefully, in every case of abdominal section, his patient's pulse before the administration of the anæsthetic, and again when the patient is thoroughly anæsthetized. He shall familiarize himself with its resistance, its frequency and its general characteristics.

When the operation is completed, before the patient is removed from the table, he shall again carefully study it with special reference to its resistance, size and frequency. He is then prepared to note any changes in these respects that may occur from hour to hour.

If a previously good pulse is very small, very rapid and very compressible immediately after an operation in which the loss of blood has not been great, the condition is one of shock. This condition may continue unchanged several hours, unless relieved by proper treatment.

If, on the other hand, the pulse is comparatively good at the time the operation is completed and soon after the patient is "put to bed" begins to grow gradually more feeble, more rapid and smaller, we have without any doubt, hæmorrhage. Perhaps I should not say "without any doubt" because cases which have been denominated "Reflex Shock" have been reported where the characteristic symptoms of shock first manifested themselves one or two hours after the operation, after recovery from the anæsthetic, the pulse having been of good character up to that time. These



cases must be rare and due to cerebral impressions or to some irritation of the cerebro-spinal system, which is not manifest while this system is deadened by the anæsthetic, but which becomes active as the effect of the anæsthetic passes away. It is properly called reflex shock because the irritation must be conveyed to the sympathetic system before it can be manifested as shock.

These cases, I have said, are comparatively rare, and fortunately, as in cases where no drainage is used, it will be extremely difficult to differentiate them from hæmorrhage. The color and the nervous or mental condition would be our only reliance as far as the symptomatology of the two conditions is concerned. But fortunately the hypodermic administration of a large dose of codeine will aid greatly in our diagnosis. It will do no harm in hæmorrhage and will rapidly dissipate the symptoms of shock by obtunding the cerebro-spinal irritation which is the source of the sympathetic disturbance.

There are, however, other symptoms that we may study as corroborative of the pulse, the first and principal of which is the patient's color. Invariably in shock there is a livid character to the pallor which is distinctive and does not occur in hæmorrhage.

This is especially noticeable under the finger nails and in the mucous membranes. However anæmic a patient may be before operation if she suffers profoundly from shock, so profoundly as to make the

question of diagnosis of especial importance there will be a blue, livid character to the bloodlessness of the nails and mucous membranes, because though the arterioles are empty, the capillaries and veins are comparatively full. On the other hand, if the pallor is caused by hæmorrhage, it is more decided. The nails and mucous membranes are actually bloodless; there is no venous stasis to impart the livid character to the tissues that we see in shock. The mucous membrane and all soft tissues are actually bloodless. Again, there is one other symptom on which a certain amount of reliance can be placed when it is considered with relation to the two conditions just mentioned, and that is the mental attitude of the patient.

In shock there is very generally a condition of mental apathy, sluggishness of the intellectual faculties with co-incident physical depression. On the other hand secondary hæmorrhage generally induces early an apprehensive, excitable mental condition with restlessness which is sometimes very marked.

This variation is the direct result of the diverse vascular conditions of the brain. In shock there is acute arterial cerebral anæmia, with passive venous congestion. In hæmorrhage there is absolute anæmia, both arterial and venous.

Upon these three symptoms or conditions must our main reliance be placed in differentiating between shock and hæmorrhage.

Between shock and sepsis the diagnosis should not be difficult theoretically, in as much as shock is a condition immediately consequent to the operation, while sepsis occurs gradually after the lapse of hours if not days. Again in the early stages of sepsis, the temperature is invariably elevated, while in shock it is depressed.

Where the patient was in a septic condition at the time of operation, with a rapid, small pulse, there might possibly be a question as to the existence of shock, but if the operator had rendered himself familiar with the pulse and general condition of the patient before operation, the post-operative diagnosis would be freed from most of its difficulties.

It might be thought that the same would hold true as to the diagnosis between hæmorrhage and sepsis, namely, that hæmorrhage occurs immediately after operation, while sepsis is a later condition.

This is, of course, the rule, but there are conditions which render the diagnosis extremely difficult. These conditions may be said to depend partly upon the volume or rapidity of the hæmorrhage, and the time of its occurrence, as also upon the early or late appearance of the manifestations of sepsis. That is, there may be free absorption of septic material before the operation is fairly completed, as where extensive raw surfaces, caused by the separation of adhesions, are flooded with a virulent fluid which is not at once removed. In such case there

will be, almost immediately after the completion of the operation, a decided and continuous increase in the rapidity of the pulse.

A similar condition would occur as a result of secondary hæmorrhage, but the increasingly rapid pulse would be the only symptom in common. The pulse of hæmorrhage would become rapidly smaller and more compressible, while in sepsis it would grow more rapid but harder. The color in hæmorrhage would rapidly be lost, while in sepsis there would be little change. The temperature in hæmorrhage such as we are considering, would be normal or possibly sub-normal, while in this rapidly occurring sepsis it would be invariably elevated, corresponding, to a certain extent, to the pulse. I think I may state it as a fact that the temperature in sepsis, following abdominal section, never becomes sub-normal or normal till peritonitis supervenes, and in such form or degree as to involve the sympathetic ganglia in the irritative processes, or until death is imminent. Under such conditions you would get a very rapid small pulse, with abnormally low temperature.

This condition never occurs, however, within the first twelve or even twenty-four hours following the operation. And this fact alone differentiates it from that form of hæmorrhage that causes sub-normal temperature.

A rapidly increasing pulse, with normal or sub-normal temperature occurring immediately after opera-

tion, means hæmorrhage, except in those rare cases of reflex shock mentioned above.

But there is another form of hæmorrhage occurring after abdominal section which is distinguished from sepsis with much greater difficulty. It is when the hæmorrhage begins several hours after the completion of the operation, and is very gradual but continuous, the blood being poured out into the free peritoneal cavity. In such cases the pulse, while remaining unchanged for several hours after the operation, gradually grows more rapid and feeble, and at the same time the temperature rises, though not to a point corresponding to the pulse. Such cases have been reported by Buckmaster, Fry and others.

In the session of the Soc. de Chir. of Paris, Dec. 4th, 1895, there was a discussion of this very condition, consequent on a report of a case by Peyrot.\* In such cases the question as to hæmorrhage or sepsis becomes very pertinent.

Hæmorrhage causes a pulse which, while it rapidly grows more rapid, at the same time becomes softer and smaller. The pulse of sepsis, though equally rapid, would maintain or increase its tension. The color in hæmorrhage would gradually be lost in spite of the accompanying fever. In sepsis it would be unchanged, or there would be an increase of color

due to the fever. The abdomen in hæmorrhage would be flat, soft and free from increased tenderness, or somewhat distended and "boggy." In sepsis we should expect some tympanites with tenderness and a certain amount of hardness of the muscles.

In hæmorrhage the mental condition is either unchanged or becomes somewhat anxious or apprehensive. In sepsis there is more apt to be a condition of excitation.

In hæmorrhage there is a greater disproportion between the temperature and the pulse than in sepsis.

But partly because of the comparative rarity of this form of hæmorrhage, and partly because the symptoms of the two conditions are so similar, the differential diagnosis will always be a matter of great difficulty to most of us.

The one important conclusion that I will draw from the above statement of conditions and symptoms is, that in the differential diagnosis of shock, hæmorrhage and sepsis our main reliance must be placed on the condition of the pulse, and that the surgeon must familiarize himself with it before and immediately after the operation, if he will be competent to judge of its subsequent behavior. All other symptoms must be studied with reference to the pulse, whether corroborative or otherwise. The closest and most careful observer is the best diagnostician, and knows best the post-operative history and condition of his patients.

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\* Gaz. Med. de Paris, No. 49, 1895.

## Review of Gynecology.

### Uterine Retrodisplacement.

BY DR. FREDERICK H. WIGGIN.

THE writer believes that if the process about to be described is adhered to, the results obtained will prove entirely satisfactory, and that the operation of vaginal fixation will, in time, be proved to be the most satisfactory means at our command for the permanent relief of those suffering from retrodisplaced uteri. The patient is prepared as for a vaginal hysterectomy, and is placed on the table in the dorsal position, with the thighs flexed and held in place by a Clover crutch. As in this class of cases there is more or less endometritis, it is well to begin the operation by curetting the uterus with a sharp curette, gauze not being placed in the cavity. Any existing laceration of the cervix should be repaired, sutures of catgut being used. These steps having been taken, the cervix is grasped and drawn downward and forward by the aid of a bullet forceps. Then a portion of the anterior vaginal wall, about three quarters of an inch below the meatus urinarius, is taken up in the same way and drawn forward and upward, thus stretching the wall. An incision is made, beginning at the last-named point and continuing to the cervix. If this wall is more or less prolapsed, the incision, instead of being straight, should be oval, allowing for the removal of sufficient tissue to overcome this defect when the sutures which close the vaginal wound are placed. These flaps are dissected

der, into which a sound is passed, and by its aid the thickness of the bladder wall is estimated and its lower border defined. A needle, threaded with pedicle silk, is passed through the interior edge of either flap and tied, the ends being kept long. These serve as retractors, and, the flaps being held aside, a curved transverse incision is made at the cervico-vesical junction. The bladder is freely separated from the uterus by blunt dissection with the finger, the vesico-uterine fold of peritoneum being divided by the aid of scissors. The patient's hips are elevated, which allows the bladder and intestines to gravitate from the uterus, the fundus of which is brought into view and is seized with a bullet forceps and drawn forward. The ovaries and tubes are inspected after existing adhesions have been broken up, and if diseased are removed. A suture of chromicized catgut or kangaroo tendon is passed by means of a curved Hagedorn needle through the left vaginal flap at a point slightly distant from its superior margin, then through the muscular tissue of the anterior uterine wall, close to the fundus, and then through the right vaginal flap near its upper margin. A second suture is passed in the same way, about one third of an inch below the first. The uterus being well anteverted, the sutures are tied loosely. The balance of the wound in the anterior vaginal wall, after free irrigation with saline solution and the application of hydrogen dioxide, if there is much oozing, is closed by means of interrupted



sutures of horsehair, and the wound is sealed by painting it over with a ten-per-cent. solution of iodoform in ether. A small quantity of gauze is placed in the vagina for the purpose of effecting drainage, and an antiseptic pad is applied to the vulva.

One of the five cases which he adduces in evidence is S. S., a single woman, eighteen years of age, admitted to the gynecological ward of the City Hospital on December 12th, 1895. She stated that her first menstrual period occurred during her eleventh year, that menstruation had been more or less irregular, and that it had been accompanied by pain before, during, and after the flow had been established. She had had no children, but in May, 1894, she had had a miscarriage at two months, which had been followed by a long illness of a feverish nature, and by severe pain in the lower abdominal region. This pain had been rather more severe on her left side, and had radiated into the small of the back and down both thighs. It had been increased by the upright position or by walking. She also stated that she had had syphilis, the first symptom of which had appeared during June, 1894, and that in March, 1895, she had submitted to a curettage, which procedure had temporarily improved her condition. Vaginal examination revealed the fact that the uterus was enlarged, tender, and retroplaced, and that an enlargement of the right ovary existed.

On December 30th, after the usual preparation, and under ether narcosis, the anterior vaginal wall was incised, the bladder separated, the fundus of the uterus drawn forward, and the vesico-uterine fold of the peritonæum incised. On examination, the left ovary and tube proved to be normal, but the right ovary was found to con-

tain a cyst, and this was removed. The uterus was then attached by three catgut sutures to the anterior vaginal flaps, which were united by a continuous suture of catgut. On January 4th there was a slight elevation of the patient's temperature, and she complained of colicky uterine pain. Vaginal examination revealed the fact that the uterine body was acutely flexed on the cervical portion, the sutures having been placed too low down on the body. Under chloroform anaesthesia the sutures were removed and some of the adhesions broken up, and the uterus placed in a better position. It was found that these adhesions were already very strong. The patient progressed favorably until January 15th.—*New York Medical Journal*, August 8, 1896.



### The Bicycle for Women.

DR. James S. Prendergast of Philadelphia thinks that for physical exercise for both men and women, the bicycle is one of the greatest inventions of the nineteenth century. It will be productive of great value to the present generation, while in the next its benefits will be seen in the form of better health, finer physical development, and more stable nervous systems.

Exercise is a necessity for continued good health and mental vigor. It is almost universally conceded that any form of exercise that will bring women and girls into the open air must be of great value. They have been so tied down and hampered by social duties and conventionalities, and have been dressing for generations so unhygienically, regardless of health or comfort, that many of them have become mere bundles of nerve fibers ready to explode on the slight-



est provocation. To these the bicycle will prove a blessing.

All the muscles of the lower extremity (those of the pelvic floor, the back and the abdomen) are brought into play; the muscles of the back in maintaining an erect posture and in balancing the wheel; the abdominal muscles in hill climbing and hard pushing, unless confined by tight corsets; the muscles of the arms in guiding the wheel and in helping carry the weight of the body in crossing rough spots in the road.

The heart and lungs are benefited by the increased force of the circulation and by the deep inspirations.

This increased circulation means better nutrition to starved nerves. The muscles grow larger, firmer, and respond more readily to volition. In bicycle riding, the muscles must begin to work in the proper order and the energy of each must increase, halt and diminish according to a certain law, so that the result shall be the proper position on the wheel in order to maintain one's balance and to exert the force in the proper direction. Thus bicycling is not mere muscle gymnastics, but also to a high degree, nerve gymnastics, if for the sake of brevity we may apply the term nerves to the whole nervous system.

Bicycling is a better form of exercise than horse-back-riding; (1) because hundreds can ride a wheel where one can ride a horse. (2) It is a better form of exercise. (3) The clothing can be and should be perfectly comfortable.

For women the wheel should run very easily and not be geared too high. A wheel gear of 53 or 56 inches is high enough to use the first season unless the rider is accustomed to considerable exercise.

The wheel should fit the rider as to height of frame, length of stroke, ad-

justment of handle bars and saddle in order to obtain the best results from a hygienic point of view.

Replies from twenty prominent physicians and gynæcologists indicate that bad effects from bicycle riding are rare in their experience. All of them consider it a good exercise for women and girls. Several have however seen severe troubles resulting from the use of improper saddles.

The ideal saddle should be broad enough to sit upon with the weight carried on the tuberosities of the ischia: it must not produce pressure on the perinæum or have a high peak to injure the vulva: it should not chafe and produce saddle soreness; it should be cool and springy enough to take up shock and vibration not disposed of by the pneumatic tire. The author thinks that the Christy saddle meets these requirements most completely but we fail to see why the Duplex is not just as satisfactory.

Several cases of female diseases cured by bicycle riding are cited and in conclusion the author says:

We have in the bicycle an agent which will accomplish an enormous amount of good for women. It is notorious that women after a certain age will not take sufficient exercise in the open air, and to order them to do so for the mere sake of exercise is a waste of time, as not one in a hundred has the courage to keep it up. What women, who are tied down by household cares and social duties and occupied in sedentary pursuits, need, is exercise with some mental stimulus or recreation. The bicycle answers perfectly this condition, and peevish overwrought, nervous women will find that exercise in the sunlight and fresh air will invigorate their bodies, restore the appetite, bring ease, contentment and elasticity to the mind and enable them to better withstand the wear and tear of mind and body to which our high-

pressure methods of living subject them. As a therapeutic agent the bicycle has a very wide range of usefulness. If used with discretion and ordinary common sense it will prove of value in a number of chronic conditions—namely, all chronic pelvic troubles, chronic heart disease (as bicycling closely resembles mountain climbing) dyspepsia, functional conditions of the liver, chronic constipation, and all functional troubles. This is brought about not by any special effect of the exercise on certain organs, but because it is a pleasant, healthful form of exercise in the open air, and by exercising all the muscles and increasing the force of the circulation benefits special conditions.

Personally I should consider it safe to allow the use of the wheel in any condition that permits walking, providing hill-climbing is not attempted.

Through the general use of the wheel by women we look for reform in dress, more exercise in the open air, better muscular development, more stable nerves, easier labors, and healthier children.—*American Journal of Obstetrics*, August, 1896.



### Hysterectomy.

FEW of the papers read before the last annual meeting of the American Gynæcological Society produced more general discussion than that of Dr. John Byrne, of Brooklyn, who read a paper on "The relative merits of total or partial hysterectomy for cancer of the cervix by ordinary methods, and supravaginal excision by galvano-cautery".

Dr. Byrne is a firm believer in his own operation by the galvano-cautery and adduced strong evidence in its support. He said in part: At a very early period of my investigation I was particularly struck with the

great diversity of opinion and the still more remarkable lack of uniformity in the experience of different operators regarding primary mortality. In the first place I find that in 1273 colpolysterectomies by 38 surgeons (European and American) the average primary mortality was 14.6 per cent., in spite of the fact that the great majority of the contributors to this record had been trying their hand at perfecting the technique of these operations for years. As to recurrence one of the most favorable exhibits obtainable was that of 235 such operations by leading surgeons, mainly in Germany and France, with the result that in 63 of these cases (or 27 per cent. of the whole) there was an average exemption of three years and four months, while nothing whatever was said of the fate of 172 (or 73 per cent.) of the entire number operated upon. He found confirmation of this same in an institution where 163 vaginal hysterectomies for cancer were done within three years. Replies from fifty-three surgeons to personal letters of inquiry did not serve to change his opinion that "there is positively no place in legitimate surgery for colpolysterectomy, or high or low amputation in cancer of the cervix except when performed through the agency of the galvano-cautery. As I have already hinted, the question of primary mortality need hardly be considered in discussing vaginal hysterectomy, because whether the death-rate due to this operation be seven, ten or fifteen per cent does not seriously effect the more important question as to its practical utility. The maximum rate is in itself nothing to be ashamed of and if the gain were at all proportionate to the risk, and if one knew of no better or safer means of combatting the disease, it were folly to doubt the

wisdom of its general adoption.

But after long clinical experience and a fairly exhaustive study of the statistics, I am fully convinced that there is an infinitely safer and better means and one possessing certain merits, immediate and remote to which no other means or method can lay claim. These, briefly enumerated are: exemption from traumatic contamination of parts already sound or presumed to be so; the avoidance of hæmorrhage, shock, peritonitis and post-operative sepsis; consequently, the almost total annihilation of primary mortality or even danger; and, lastly, "*et propter hæc*" and above all, a prolonged immunity from recurrence.

With regard to the important features here enumerated, I would further remark that one of the most significant and indeed suggestive clinical facts connected with these operations is the immunity obtained from a recurrence of the disease in thermo-cicatricial tissues.

On the other hand, the citatrix following operations done in the ordinary way is admittedly the vulnerable point and almost invariably the place selected for recurrence. So, gentleman, as neither primary mortality, traumatic infection, nor sepsis follow galvano-cautery and need not enter into the circulation, and as the most liberal allowance is rightfully due and should be cheerfully considered, to the more radical and dangerous proceeding, the chief if not the only question, when thus narrowed down, is whether in cancer of the cervix total or partial hysterectomy as ordinarily performed, or excision of the diseased part by the galvano-cautery knife, followed by deep and thorough dry-roasting of the remaining excavation, offer the better prospects for prolonged immunity from relapse.

In the discussion which followed

Dr. Sutton said: I have an objection to the use of the galvano-cautery, which perhaps would not apply to Dr. Byrne, because he has had a lifelong experience with it, and that is, that in using the galvano-cautery the knife is covered with albuminate and flesh is a poor conductor of heat which interferes with the heat in the knife and makes it a very tedious process.

Dr. Janvrin said that in his experience with cancer starting in the cervix to the discussion of which he believed Dr. Byrne's paper called, 33 1-3 per cent. of his cases are alive after 3 1-2 to 10 years have elapsed and he treats them by vaginal hysterectomy, moreover where recurrence does happen, the pain has been very little compared with the pain, suffering and offensive discharge which before existed.

Dr. Kelly said: We must abandon the vaginal field for carcinoma for the reason that you cannot as effectually treat carcinoma by the vagina, as you can by opening the abdomen.

Dr. Mann said: The bulk of the cases are those which involve the cervix proper above the vaginal portion, and in these I have no doubt the abdominal method is the better. The work which has been done in Baltimore, the work done by our President, and others in this line, seems to me to prove conclusively—and my own experience carries it out—that we can do much better work from above than we can from below in these cases.

Dr. Coe said: I do not see how we can dispute the claims of Dr. Byrne, that the use of the cautery not only removes the disease but destroys and chars the cells.

Dr. Gordon said: I believe that Dr. Byrne has done the best work that has ever been done in any direction, yet I have never done any of it myself. But I do make the double op-

eration usually in cancer of the uterus. I agree with Dr. Coe that operations for cancer of the uterus are very unsatisfactory. I think it accomplishes only this, that you often remove a large amount of tissue which sloughs and makes the patient very much more disgusting to herself and everybody else.—*American Gynecological and Obstetrical Journal*, July, 1896.



### The Bacteriology of Vaginal Secretions.

DR. B. C. Hirst, of Philadelphia, having made a careful study of the recent German literature of this subject as well as numerous scientific observations himself has embodied this knowledge in a paper read before the section of Gynecology, College of Physicians, Philadelphia, April 16, 1896.

His conclusions are certainly unique and while we may not agree are of interest to all physicians. He says: "From this mass of facts, the practical physician may draw the following conclusions, I think, to guide him in his work: The vagina becomes infected almost immediately after birth, in normal conditions it contains no pathogenic bacteria: it has strong germicidal powers which serve to guard a woman against infection. These powers depend as far as our present knowledge goes, upon the presence of a special bacillus and upon the products of its life processes; upon the leucocytosis due to chemotactic action; upon phagocytosis; upon the germicidal powers, perhaps, of the anatomical elements of the vagina, of the cervical mucus, and of the bloody discharge during menstruation and the puerperium.

During and after labor mechanical safeguards of the most effective kind are furnished against infection. These are the discharge of the liquor amnii,

washing out the vagina; the passage of the child's body; the descent of the placenta and membranes, and the bloody discharge which follows.

Moreover, should the vagina exceptionally contain pathogenic bacteria, they are likely to be in a condition of diminished or absent virulence, in which condition they will be productive of disease unless the tissues with which they come in contact are reduced in vitality.

Bearing these facts in mind it would seem that the common practice of relying upon vaginal douching for disinfecting the vagina before labor, or before some gynecological manoeuvre or operation, is faulty, not to say foolish. It has been clearly demonstrated that the injection of an anti-septic fluid in the vagina will not destroy pathogenic germs there and will moreover rob the woman to a certain extent of the safeguards against infection that nature provides for her. If, therefore, under certain circumstances, it is desirable to disinfect the vagina, mere douching should not be depended upon, but the vaginal mucous membrane should be thoroughly scrubbed as well as douched, just as one would prepare the skin for an important surgical operation. This rule applies as well to obstetrical as to gynecological work. It has long been my practice in the former not to use objective antisepsis unless I see good reason for it, in microscopic evidence of a pathological condition of the vagina, but to confine myself to subjective antisepsis—that is, to the most thorough cleanliness of my hands, of my implements, and of the hands of the attendants who come in contact with the patient. When in consequence of some diseased condition in the vagina, it is considered advisable to disinfect the lower genital canal, one should proceed just as though he were about to undertake some serious gynecological operation. That is,



he should scrub out the vagina with tincture of green soap, hot water, and pledgets of cotton before using a douche. He should not depend, as so many practitioners do, simply upon an antiseptic vaginal injection.—*American Journal of Obstetrics*, July, 1896.



### Some Affections of the Female Bladder.

BY EDGAR GARCEAU, M.D.

THE Kelly cystoscope brings all parts of the bladder, the openings of the ureters and the urethra under the eye, so that we actually see the disease before us. Through the cystoscope we may make applications to ulcers of the bladder; we may touch, for instance, tubercles with nitrate of silver; we may remove foreign bodies and small calculi. Diseases of the bladder itself are, therefore, amenable to local treatment. The urine can be drawn from each kidney, and can be examined with reference to the working efficiency of each; this is particularly important when the question arises of removing one kidney for disease, for it can be determined with accuracy just what the condition of the opposite kidney is, thus eliminating the possibility of removing a diseased kidney when the opposite one may be equally affected.

In a case recently seen with Dr. S. Breck this question arose. It was in the case of a young unmarried woman who had had pain in the left lumbar region for some time with pyuria. She was much reduced in health. Both ureters were catheterized, and urine collected from each. There was pus from the right kidney as well as from the left, showing that both were affected. This altered the aspect of the case.

Kelly relates the case of a woman who had been suffering from indigestion, headache, a sense of pressure in the bowels and pyuria. The right renal pelvis was catheterized with a long catheter; thirteen cubic centimetres of urine flowed in two minutes; normally only one cubic centimetre of urine flows in two minutes. This showed obstruction at the pelvic outlet. Suction with an aspirator brought away some pieces of uric acid and the end of the catheter was scratched, so that there was no doubt about the diagnosis. She was operated on, and a renal calculus of small size removed by lumbar incision.

In another of Kelly's cases there was stricture of left ureter with pyoureter above it. She was cured by passing bougies, and washing the ureter with bi-chloride solution, but there was trouble in keeping the stricture open. A most important feature of the Kelly ureteral catheters is the feeling of safety they give when *in situ* during a hysterectomy, either abdominal or vaginal. The catheter can be felt throughout the operation and there is consequently no danger of wounding the ureter.

The cystoscope has brought out from obscurity many diseases of the female bladder, some of which have heretofore been ascribed to the vague action of the reflexes, or classed as *neuroses*. The picture of a nervous woman broken down in health, suffering from irritable bladder, is a familiar one. When no apparent cause for this condition was present, the physician was easily led into the error of mistaking cause for effect and of attributing the irritable bladder to a manifestation of an irritable nervous system. The urine in these cases might be quite normal. The cystoscope has shown that these "functional diseases" have almost without exception a definite patho-

logical condition which is amenable to treatment. The diagnosis of bladder affections without the cystoscope has been particularly difficult because the magnitude of the lesion may have no relation to the severity of the symptoms. For instance, in one case the bladder was found to contain numerous ulcers, some at the fundus, some at the ureteral orifices, besides these there was a cheesy mass occupying the site of the right ureteral orifice—and yet the only symptom complained of was occasional bloody urine. Next to this case may be placed another in which the woman was tortured night and day by a harassing desire to urinate constantly. Her sleep was disturbed, she could do no work, and she was reduced to a state of invalidism. Yet the cystoscope showed only a hyperemia of the vesical neck and trigonum. In another case of acute post-operative cystitis the only symptom was the presence of large amounts of pus and mucus in the urine. On examination with the cystoscope the trigonum was seen to be of a bright, glistening, purplish red hue, while the rest of the bladder showed here and there patches of dilated blood-vessels which stood out in bold relief; no part of the bladder was exempt; the fundus, however, was least affected. The point of interest was that there was relatively no inflammatory appearance about the neck of the bladder the most sensitive portion; this probably accounted for the absence of the usual symptoms, tenesmus and frequent micturition.

The urine is retained in the bladder by two separate forces: the reflex contraction of the muscles of the sphincter and the elasticity of the sphincter itself. When the sensibility of the bladder is exaggerated by inflammation or hyperemia, the reflex impulse to micturate is in-

creased in intensity, producing intolerance of urine or irritable bladder. Under these circumstances the urine has to be discharged by a reflex act as soon as it has accumulated in small quantity in the bladder. The impression which excites this discharge is accompanied by a sensation, but may be too urgent to be resisted by the will; in any event it can be held back but a short time. The most sensitive portion of the bladder being the vesical neck, as it is most abundantly supplied with spinal nerves, it is readily seen that apparently insignificant lesions may cause intolerable suffering. This brings us to the consideration of an affection of the bladder which may be called "hyperemia of the vesical neck and trigonum." It is a very common affection and may give rise to a degree of suffering which is not in proportion to the magnitude of the lesion. It may cause the nervous break-down of the strongest constitution. Hyperemia may affect the vesical neck, the trigonum, the urethra, or all three. As a rule the vesical neck is the usual seat. Not only is it obscure in its cause but it is likewise most difficult to treat and will sometimes resist every known therapeutic agent. The following is a typical case of this affection and illustrates exceedingly well the different phases of the disease:

Mrs. W. was a woman thirty-three years old who had been delivered of five children, the youngest being ten years old. From the time of the last confinement, when she had septicaemia in a severe form, she was never well. Constant pelvic pain, exhausting and frequent hemorrhages and leucorrhea reduced her to an invalid and made her life not worth living. During the ten years of the illness she had repeated attacks of pelvic-peritonitis which confined her to bed for days at a time. I did a vaginal

hysterectomy by Pean's method of morcellation, last September, removing a large uterus and ovaries and tubes enlarged to three times the normal size by inflammation. She recovered well from the operation and was up in three weeks. At once she had trouble with the bladder. She had frequent micturition and dysuria, the pain occurring during and after the act. This is contrary to the usual rule: for in most cases of hyperemia pain is absent, there being only increased frequency and an irresistible desire. The pain did not last long with her, and in a few weeks it disappeared. She was obliged to urinate every half-hour during the daytime, and during the night she got up seven or eight times or more. Under these circumstances, with broken sleep and constant suffering, it is not surprising that she developed a condition of extreme irritability, which manifested itself by attacks of crying, profound mental depression, loss of appetite, and violent outbreaks of temper. The urine was now examined, *and was found to be quite normal, without pus or other abnormal constituent* (later she developed oxaluria, however).

Here, then, was a case which formerly would have been classed as a functional disease of the bladder dependent on an irritable nervous system. The patient was examined under cocaine with the cystoscope three weeks after she had left her bed. The whole urethra was of an intensely scarlet-red hue, and likewise the neck of the bladder and trigonum: there were no superficial erosions of epithelium. On vaginal examination there was found a tender cicatrix in the right broad ligament about the size of a pigeon's egg. The treatment began by making applications of silver nitrate, three per cent., to the neck of the bladder and

urethra, and giving bipolar vaginal faradic electricity. This, with tonics and the various diuretics has been the treatment. The result has been decidedly unsatisfactory so far.<sup>1</sup> She is still troubled by frequent micturition and in addition has partial incontinence of urine. A curious phenomena in her case is aggravation of her symptoms at the end of each month, the time of her former menstrual period. It lasts a few days and then subsides: she is feeling best in the middle of the month. It is worth mentioning that her incontinence appeared three weeks after a cystoscopic examination, so that it had no relation with this. The incontinence may be looked upon in her case as a later stage of the disease when the sphincter can no longer perform its function. Among other things that were tried was the treatment with Clark's balloons. By this method a rubber balloon smeared with ichthyol is introduced into the bladder and blown up; the ichthyol comes in close contact with the inflamed areas and it is claimed is more efficacious than when simply applied with a cotton stick. The balloon caused intolerable suffering and had to be discontinued. She has most relief when lying on a sofa with her head low and her feet elevated.

Besides this case of vesical hyperemia I have had, up to the present time, five others, making six in all. The complicating diseases were respectively, antelexion, retroversion, (with pessary), two of endometritis, and a case of general subinvolution after confinement. One of the endometritis cases was really a case of subacute cystitis, for which a vesico-vaginal fistula was made with entire success, the local treatment having

<sup>1</sup> This case was finally treated by making an artificial vesico-vaginal fistula. Entire relief followed, especially with reference to nervous symptoms.

failed. This case was distinctly traceable to catheter infection three years before. A most faithful trial of Kelly's treatment was made, extending over a period of four months without any appreciable success. This leaves us, including Mrs. W.'s case, five to analyze. In one only was a complete cure effected. It was the case of subinvolution. When she came under treatment she was urinating every hour in the daytime and got up three times each night. She had intense vesical hyperemia affecting the neck, which was made to disappear in four weeks by applying solutions of nitrate of silver alternating with glycerite of tannin to the neck of the bladder. The other four cases were much relieved, but not cured. Applications in all cases were beneficial, and relieved for a certain time.

The failure to cure these cases suggests that the vesical hyperemia is part of a general pelvic hyperemia dependent on the primary disease. The vesical irritability is due to a hypersensitive condition of the vesical neck produced by the congestion at this point. This seems reasonable when the intimate anastomoses between the uterine and vaginal arteries with the vesicals are considered. The primary pelvic lesion causes pelvic congestion which involves the vesical neck. The constant desire to urinate intensifies the pelvic congestion; and so a vicious circle is established. This may explain the chronicity of the affection. In many cases of vesical hyperemia rectal hemorrhages are observed: they are always beneficial and act by relieving congestion. In one case recently observed severe vesical irritability after operation at once ceased with free catharsis.

Thinking that perhaps the catheter might be responsible for vesical irri-

tability after operation, an analysis of 43 cases was undertaken.<sup>2</sup> These cases were individually closely followed.<sup>3</sup> Of these, 22 had no subsequent bladder trouble, and 21 did. Of the 22 cases in which there was no trouble after operation, 13 had had vesical irritation before operation, which ceased as soon as the operation was done. The operation therefore seemed to have a beneficial effect. Of the 22 cases the catheter was used in 10. In the 9 cases in which there had been no previous bladder trouble, the catheter had to be used only three times. In the 21 cases in which there was vesical irritability after operation it was found that all, with a single exception, had had previous vesical disturbance: the catheter was required in 14 of these cases.

To sum up, out of the 43 cases, 33, or 76 per cent., had had previous bladder trouble. This shows the frequency of vesical irritation in pelvic diseases. In the 10 cases in which there was no previous bladder trouble the catheter was required in four cases: no irritation followed. Of the 33 cases, in 24 the catheter was used. Looking at the 22 cases in which no trouble followed operation we find 10 in which the catheter was used. This is certainly evidence that the catheter does not cause irritation. Looking now at the other 21 cases we find the catheter was used in 14. They were either better or no worse of their irritation after operation with the exception of six, and these six in all suffered severely from bladder irritability before operation. It seems to be a fair conclusion, therefore, that the catheter, when properly used has no effect in causing

<sup>2</sup> Operative cases in Free Hospital for Women.

<sup>3</sup> See article in *American Journal of Obstetrics and Diseases of Women and Children*, vol. xxxiii, No. 6, 1896. The influence of the Catheter in causing Vesical Irritability, Edgar Garceau.



vesical disturbance, and that it will be found that those having vesical irritability after operation are those who have had it before. It is not argued that the catheter does not cause infection when improperly used. In three cases out of the 43, a distinct history of infection was obtained, dating in all three from retention of urine after confinement when the catheter was used.

The treatment of cases of vesical hyperemia is very unsatisfactory at times. Attention to the general health is of paramount importance. Digestion should be attended to, and, above all, the bowels should be kept freely moving in order to relieve the pelvic congestion as much as possible. It is needless to say that any co-existing pelvic disease should receive appropriate treatment. Local applications of nitrate of silver and in some instances of glycerite of tannin and ichthyol have been distinctly beneficial in my experience. Great relief will be given by the use of the fine coil of the faradic current; here the bipolar vaginal electrode may be used or one electrode may be placed over the bladder on the abdomen and the other in the vagina. In one patient this treatment was always followed by a good night's rest. If the urine is altered abnormally this should be corrected. The various diuretics and vesical sedatives I have tried, but the results have not been remarkable.

Finally, if the patient continues to suffer, absolute rest in bed with mild, unstimulating diet must be insisted upon. This measure will always be productive of good results. If it fails and the trouble continues, the question of artificial vesico-vaginal fistula is presented for consideration. In this we have a remedy which is astonishing in its immediate results. The relief given is most grateful to the patient. The very night of the

operation she sleeps soundly and wakes up refreshed in the morning. The urine drains away through the vagina, and gives a much needed rest to the irritable sphincter. After this operation the woman quickly recovers her lost nervous tone, is more placid and peaceful, and is not harassed by the continual desire to micturate which made her life a perpetual torment. The fistula must be left open a sufficiently long time and in cases of cystitis the pus in the urine must have entirely disappeared before the opening is closed. Another point to be emphasized is that the fistula must be made close to the sphincter, for if it is made high up near the cervix the urine pockets below it, and so the operation fails because the irritation is kept up as before, the drainage being imperfect.

Pregnancy need not be considered a contraindication to this operation; on the contrary, the occurrence of pregnancy may so intensify the symptoms from the increased hyperemia as to render the operation imperative. This was so in the case of cystitis already referred to, in which I made a vesico-vaginal fistula. Her sufferings were intense and she insisted upon having relief. The operation was entirely successful, and the pregnancy (three months) was not disturbed.<sup>4</sup> After the confinement, if the urine is normal, the fistula will be closed. She now washes out her bladder herself at home, twice a day with boracic acid solution, using antiseptic precautions which were taught her before leaving the hospital.

In conclusion, a word may be said about the method of making examinations of the bladder. The most comfortable position is the dorsal for the patient; the examiner also will find it easier to work with the woman

<sup>4</sup>She was delivered at the end of nine months and the fistula did not complicate convalescence.

in this position. In the knee-chest position the ureteral orifices are more prominent but if the examiner is near-sighted he will find it rather difficult to get close enough to examine properly on account of the cramped position he is obliged to assume. If ether is given, the dorsal position will be chosen for obvious reasons. I have found that ordinary daylight with or without sun is quite satisfactory, and that the illumination is amply sufficient. The table should be placed close to a window, however, in order to have the light as strong as possible. If artificial light is chosen, a good strong gas-light must be used, preferably an argand burner. If ether is given the greatest care must be exercised not to burn the skin: this is an accident that easily happens, and the burns are most annoying and may be very serious. If the ureter is to be catheterized the best place for the light, if gas be used, is at the side of the woman which corresponds to the ureter to be examined, and not on the abdomen as is usually done. The examiner stands not in front of the woman but on the side opposite to the light. If he examines her left ureter the light is on the woman's left side and he stands on her right. This brings the ureteral opening directly in a line with the light and the examiner's eye and avoids cramped positions: the illumination is much better as the light is reflected directly and not at an angle. For this idea I am indebted to Dr. Edward Reynolds, as he was the first to suggest it. The examination is made much easier by using it.—*Boston Medical and Surgical Journal*, Sept. 10, 1896.

### Some Aspects of Ureteritis in Women.

BY EDWARD REYNOLDS, M.D.,  
BOSTON.

**ETIOLOGY.** The etiology of ureteritis is given by Mann as:

1. Injuries during childbirth.
2. Previous disease of the bladder.
3. Gonorrhœa.
4. Suppuration of the pelvis and kidney.
5. Pelvic disease, such as pelvic peritonitis, cellulitis and tumors.
6. Abnormal conditions of the urine.
7. Tuberculosis.

My own experience has furnished me with instances of each of these classes of disease, with the exception that I have not seen any instance in which I thought the ureteritis due to previous, non-gonorrhœal disease of the bladder, and I am inclined to consider it an excellent classification, except that I do not think we are as yet sufficiently advanced in our knowledge of the diseases of women to be in a position to postulate a statement, that in those cases in which the ureteritis is overshadowed by a suppurative disease of the kidney, it may not have been the original disease. In my experience, however, a majority of all the cases have seemed to me to be inaugurated by an altered condition of the urine due to renal insufficiency, and in this paper I wish to confine myself wholly to this class of cases: but as the clinical pictures presented by the acute and chronic stages of the affection are widely different from each other, I must ask your permission to speak of them in separate portions of this paper. Ureteritis is far from an infrequent disease, but while the symptoms of even mild ureteritis

may be extremely distressing, its physical signs are often insignificant and easily overlooked, and I think that the reason why so many gynecologists still fail to detect ureteritis with a fair degree of frequency is that they expect to find a more well-defined and pronounced lesion than in fact exists.

**DIAGNOSIS OF CHRONIC URETERITIS.** The symptoms most characteristic of ureteritis are, in my experience: first, a frequency of micturition, which is increased by the erect posture, and especially by standing, but is not wholly relieved by recumbency, the patients being invariably obliged to rise from one to many times at night; the micturition may or may not be painful; and, secondly, a bearing down pain, which is increased by standing, but is usually completely relieved by a few hours' rest in bed. These two symptoms may, of course, be produced by other pelvic lesions than ureteritis, but their combination is so much more commonly the result of an ureteral affection that its existence should always lead to a careful search for the physical signs of this affection.

Severe ureteritis may lead to a palpable enlargement of the ureter, but the physical signs of the milder degrees of the disease, obtainable by vaginal examination, are usually limited to the excitation of tenderness and a desire to urinate, by pressure over the vaginal portion of the affected ureter. This tenderness is usually so closely localized as to be easily overlooked; but when it once has been found, its strict limitation to the situation of the ureter is, of course, a diagnostic point of great importance. When the micturition is painless it is sometimes wise to rest content for a time with the provisional diagno-

sis, which can be obtained from the symptomatology and vaginal examination, and to institute the appropriate medicinal treatment, without subjecting the patient to the painful cystoscopic exploration of the bladder; but when the micturition is painful it is always best to examine the bladder at once, because in this class of cases both the pain and, to some extent, the frequency can usually be promptly, though not always permanently, relieved by topical treatment of the bladder.

The signs obtainable from cystoscopic examination comprise an alteration of the vesical orifice of the affected ureter or ureters, alterations of the vesical mucous membrane around these orifices, and a very curious alteration of the character of the urine secreted through them, the significance of which I do not wholly understand but which I think is of diagnostic value.

The appearance of the vesical orifice of an inflamed ureter varies from a slight reddening and gaping to an actual eversion of the ureteral mucous membrane, till in extreme cases the orifice shows a round hole situated on the summit of a little mound of angry-looking mucous membrane. The vesical mucous membrane in the neighborhood of the orifice may be normal, but is more commonly red and injected, or even roughened and eroded, the latter sometimes to a degree which approaches ulceration, and I have several times seen cases in which there was a strip of inflamed mucous membrane which extended diagonally downward and inward from the ureter toward and almost to the internal orifice of the urethra.

In eight cases of unilateral ureteritis, in which I have recently catheterized both ureters, the per-

centage of urea as determined for me in the laboratory of Professor Wood, of the Harvard Medical School, was in every case decreased upon the affected side, as compared with the sound one, and the etiological importance of the renal insufficiency, which was demonstrated by examination of the twenty-four-hours' mixed specimen, was to my mind increased by the constant and distinct, though usually slight, increase of this renal insufficiency upon the inflamed side. I am fully aware that my observations upon this point are too few to be trustworthy, and I have not yet been able to determine how much weight should be given to the reflex alteration of the function of the kidneys, which is a not improbable result of the presence of the catheters; but I mention the point here: first, in the hope of interesting other observers in it; and, secondly, because it has already led me into what has proved to be, on the whole, the most satisfactory method of treatment which I have so far found.

**TREATMENT.** The treatment of this affection should be divided into palliative and curative methods. In the class of cases in which the vesical mucous membrane in the neighborhood of the ureteral orifice is in a state of localized inflammation, I have always obtained a prompt relief of the pain on micturition, and, usually, a decrease in the frequency of urination, by the use of strictly localized applications of the solid nitrate of silver to the inflamed areas. When the ulcers or erosions extend into the neighborhood of the urethral opening, or when the nitrate is too freely applied, the application is apt to be followed by temporary increase of the symptoms; but this increase seldom lasts more than twenty-four hours,

and is then followed by relief. When it is not necessary to approach closely the urethral orifice, and the nitrate is sparingly used, the relief is usually immediate; but complete relief of the painful micturition cannot be expected until all the inflamed vesical mucous membrane has been restored to health, a process which may sometimes take from one to three weeks, and even then the frequency of micturition and the bearing-down pain, which are so characteristic of the affection, are usually but slightly improved. The relief of these symptoms must depend on the cure of the underlying and less accessible ureteral inflammation.

In the curative treatment of ureteritis we are forced to rely upon the use of general hygienic and medicinal measures. First among these must be placed, I think, the regulation of diet, and first in this particular the ingestion of an amount of bland fluid equal to at least three pints of water, and better, four. The soothing effects of the increased ingestion of water may be advantageously supplemented by an alkaline diuretic. For the rest, the patient should be put on a bland, nutritious, and, I think, largely albuminous diet. Asparagus and strawberries should be absolutely interdicted; other fruits should be used but sparingly, and the highly flavored vegetables in general, such as tomatoes, onions, cabbages, etc., should be tried with caution. General massage has, in the few cases in which I have been able to prescribe it, been of the greatest benefit to the patients; and I should be inclined to advocate active exercise, such as the use of the bicycle, but circumstances have as yet prevented me from obtaining practical experience upon this point.



As regards medicinal treatment, I had seen but little benefit from the use of any drugs except alkalies until my observation of the urine drawn ureteral catheterization called my attention to the decrease of urea in the specimens from the affected side in unilateral cases, and so led me into a, to me, new train of reasoning. It is probable that the condition which we call renal insufficiency is less a functional vice of the kidneys than a deficiency in the metabolism of the body as a whole. We know but little of the ultimate characteristics of the urine in renal insufficiency; but if this condition is in fact the result of an imperfect metabolism, its urine may well contain unknown irritants. If then, the urine may, perhaps, contain in these cases an irritant which is the result of an imperfect metabolism, it might be well to try the experiment of treating it by the use of the so-called alterative drugs, which act by increasing the general metabolism of the body as a whole. As a result of this train of reasoning, I turned to the use in ureteritis of the small doses of iodide of potash and mercury, or the iodide of potash and mercury mixed which Dr. Etheridge's paper of last year first brought to my notice for the treatment of renal insufficiency. It is too soon to speak of the results, but I may say that I think I have so far had more improvement under this treatment than from any other, and that the improvement has seemed to me to be directly proportional to the increase of urea as shown by the examination of the urine.

I regret to say that I have not yet felt justified in studying the improvement of a unilateral case in the light of repeated catheteriza-

tion of the inflamed ureter; but I am at present engaged in a more extended study of the urinary chemistry of ureteritis with the collaboration of Dr. Ogden, Assistant in Urinary Chemistry, Harvard University, and I hope yet to have cases in which I may consider such catheterization justifiable.

No one interested in ureteritis can have failed to realize that our knowledge of its treatment is as yet far behind our knowledge of its diagnosis. No one can be more well aware than I that its treatment is as yet unsatisfactory, and I offer my observations upon the subject merely as suggestions, and with the utmost willingness to find them disproved by future research.

**ACUTE URETERITIS.** The clinical picture presented by an acute ureteritis is a very distinctive one, and the affection is so frequent that it is very strange that we have not sooner learned to recognize it. It is probably often mistaken for intestinal colic, pain due to renal stone, catarrhal appendicitis, or acute catarrhal salpingitis.

A woman in good health, or, more frequently, one who has maintained a fair degree of health in spite of a moderate renal insufficiency, is suddenly attacked by abdominal pain, which may be limited to one side, but is more frequently pronounced on one side and moderate on the other. The pain is somewhat intermittent and often fairly severe. General abdominal tenderness may be absent throughout the attack; but a close attention to what I am inclined to call the three cardinal points in acute ureteritis will show during any part of the attack a considerable, though perhaps closely localized, tenderness at some one or more of them. At

the beginning of the attack tenderness is elicited only by deep palpation of the affected kidney and its pelvis, the first cardinal point (the affection, in my experience, has usually been bilateral, but always more pronounced upon one side than upon the other): a day or two later this renal tenderness has, perhaps, decreased, but there is now a very marked tenderness at a point midway between the umbilicus and the anterior superior iliac spine (*i. e.* at McBurney's point, diagnostic of appendicitis, or a corresponding point upon the left side), the second cardinal point: this tenderness is often so closely localized as to be very easily missed, except on careful search, but is usually extremely marked when found. As the attack passes off, the renal tenderness disappears, and the tenderness at McBurney's point, or its fellow, decreases: but a new tenderness now appears on deep pressure at a spot about an inch above the centre of Ponpart's ligament, the third cardinal point. Vaginal examination is negative till about the time when this last-mentioned tenderness appears; but from that time on a vaginal examination will reveal the characteristic tenderness, and usually a distinct swelling, of the vesical end of the affected ureter. Examinations of the urine made during the attack may or may not show concentration, according. I suppose, as a vicarious compensation appears or does not appear in the unaffected kidney. They may occasionally show the existence of crystals of uric acid or calcic oxalate in a limpid urine, a phenomenon which is almost pathognomonic.

At the beginning of the attack it cannot be differentiated from colic due to renal stone (of course, it is

sometimes due to the passage of crystals or gravel), but the clinical course of the affection will usually in the end distinguish it. In the middle period of the attack a right-sided ureteritis closely simulates a catarrhal appendicitis; but the urinary symptoms and the appearance of tenderness over the lower end of the ureter, as the attack passes off, will easily differentiate it to a careful observer. If only the final stage of the disease is noted, it may very easily be mistaken for a catarrhal salpingitis, though a careful localization of the tenderness and swelling should prevent any mistake of diagnosis at this stage. Even when ureteritis is complicated by intestinal disturbances, the characteristic progress of its tenderness from above downward, the appearance of the vesico-ureteral tenderness, and the urinary disturbances, will easily distinguish it from intestinal colic: though without close observation a left-sided ureteritis, accompanied by constipation, might be mistaken for colic due to obstruction in the rectum or sigmoid flexure.

The affection tends toward a recovery; but without treatment it probably usually ends in the establishment of a chronic ureteritis. If the patient is kept in bed, or on a bland diet, under alkaline diuretics, and the ingestion of a large amount of water, I think that there is usually a good prospect of an immediate and complete cure. I have thought that the use of small doses of mercurials is of distinct benefit, even in the acute stages of the affection.

I am inclined to believe that the disease is a common one, but its short course and comparatively mild character will probably always render it infrequent in hospital practice, and I can only say that within

the last six months I have seen three cases in my own private practice.

In closing I wish to illustrate the ease with which mistakes in diagnosis can be made, by brief reports of two typical cases, the one of chronic, the other of acute ureteritis, both of which were among the first cases of ureteritis which were forced upon my attention.

CASE 1.—A single woman aged thirty-five years, came to my office in the autumn of 1894, with the following history: She had been obliged to micturate at intervals of from one to three hours during the daytime and from three to six times at night for nearly twenty years, micturition being sometimes painful and sometimes not; and had for the same time been afflicted by a bearing-down pain, which was invariably excited by a long walking or by standing still for even a few minutes, but which did not trouble her at night. On vaginal examination the uterus was found to be in extreme anteversion and decidedly low in the pelvis, somewhat large and heavy; the left ovary was prolapsed and adherent at the side of the uterus, and above fifty per cent. larger than its fellow. She was first given six months of wholly ineffectual minor treatment by pessaries, packing, vaginal applications, etc., during which time I made a cystoscopic examination, but failed either by this means or by the vaginal touch to detect the ureteritis, which subsequent events made me think was undoubtedly present. I then opened her abdomen, removed the diseased ovary, and stitched the fundus to the abdominal wall at as high a point as I thought safe. The other ovary showed several small cysts, which I should ordinarily have treated with the cautery; but as

the patient was an old maid, who had begged earnestly that the other ovary might be removed if there was any excuse for so doing, I rather reluctantly removed it, a procedure which was I think a mistake. She made a particularly rapid and comfortable recovery from the operation, only to find her symptoms wholly unrelieved, and, indeed much aggravated by the very distressing nervous and mento-nervous disturbances of an exceptionally trying forced menopause.

As soon as I thought her nervous condition warranted further local treatment, I again subjected her to a vaginal and, later, to a cystoscopic examination; and with the altered condition of her organs, and with the added knowledge which I had gained in the intervening year, easily diagnosed a left sided ureteritis attended by numerous vesical ulcerations. She has since gone through the usual protracted course of patients who suffer from ureteritis; but has in the last two months improved so markedly under alternate mercurials and iodide that I feel justified in looking for a complete cure of her symptoms within a short time. To my mind, her ureteritis was probably due to pressure from the prolapsed and adherent ovary which lay directly over the course of the ureter; and if this view be right, the celiotomy, though therapeutically a failure, was probably a necessary preliminary to any successful treatment of the cause of the symptoms. But the total failure of the oöphorectomy to relieve either the frequency or the bearing-down pain, both of which I had attributed to the condition of the ovary, and their gradual relief under the treatment of her ureteritis, convinced me that this, though perhaps a sec-

ondary condition was at the time of the operation the essential cause of her symptoms, and that without its discovery the operation must have remained permanently a therapeutic failure.

CASE II.—A married woman, aged forty-five years, who has been for many years my patient, but whose local troubles have always been subordinate to a debilitated general condition, was attacked in December, 1894, by a severe pain in the right hypochondriac region. I was at the time temporarily absent from the city, and a very competent gynæcologist, in whose care I had left her, finding, or thinking that he found, an enlargement at the beginning of the transverse colon, diagnosed the attack as obstruction of the colon. On my return, a few days later, she was complaining of sharp pain referred to the umbilicus, and on examination I could detect nothing but a sharp tenderness closely localized to McBurney's point. There was little or no temperature, and I made a diagnosis of catarrhal appendicitis. The family gawwling a little troubled at the policy of inaction which I recommended, I called in one of our most prominent general surgeons, who heartily agreed with me as to both diagnosis and treatment. A vaginal examination made at this time was wholly negative. The urine contained large, sharp-pointed crystals of both uric acid and calcic oxalate; but this was attributed to the general disturbances dependent upon appendicitis. Three days later the tenderness had moved down to what I now call the third cardinal point in ureteritis, and a vaginal examination showed the vesical portion of the right ureter to be exquisitely sensitive and nearly of the size of a ciga-

rette, by estimation. Under diuretics the urine rapidly became limpid; but for some time continued to contain both uric acid and calcic oxalate crystals. As this condition passed off, the patient slowly but completely convalesced. In the eighteen months which have since elapsed she has been kept steadily upon diuretics, a regulated diet, and, at intervals, general massage. She has remained steadily well, except on four occasions, when after severe fatigue, exposure to wet weather, or both, she has had attacks which were similar to the first, but milder; and which were always attended by crystals in the urine. The most severe of these attacks occurred in New York, under the care of one of our own Fellows, to whom I had referred her; but notwithstanding his well-known acuteness in diagnosis, and the fact that the patient told him that she had previously suffered from renal gravel, he diagnosed a mild colitis. On the patient's return to Boston I found the lower end of the right ureter tender and swollen, and the familiar crystals appearing in the limpid urine. I wrote to New York, asking her attendant there for a description of the attack, giving him a full account of her history, and inquiring whether or not the history would lead him to revise his diagnosis. In his reply he stated that there was nothing in the attack which he saw especially characteristic of colitis; but that he had not observed sufficient evidence to warrant a diagnosis of ureteritis. To my mind, the fact that the four attacks which this patient has had have each been followed by sensitiveness and enlargement of the ureter, which were not present in the interval, is abundant evidence of a diagnosis of ureteritis; yet the case was



diagnosed by two experienced gynæcologists as colitis, and by a gynæcologist and an eminent surgeon as appendicitis. *Transactions of the American Gynæcological Society*, May, 1896.

### A Consideration of Certain Doubtful Points in the Management of Abortion.

BY CHARLES P. NOBLE, M.D.

THERE are many problems which come up for solution in the management of cases of threatened abortion, for the proper determination of which all of the resources of the practitioner are requisite. Few cases in clinical medicine make greater demands upon his tact, knowledge, experience, and judgment, for their proper treatment, than cases of threatened abortion. As a contribution to the study of the subject, I shall offer my own views concerning four of the problems which frequently present themselves. 1. When is abortion inevitable? 2. When is abortion complete? 3. After septic abortions, when shall irrigation of the uterus be discontinued? 4. After septic abortions, when shall operation *per vaginam* or by abdominal section be done?

*When is abortion inevitable?* Every practitioner of experience is aware of the delicate nature of the question as to when abortion is inevitable. Upon its proper solution depends, upon the one hand the chances for existence of a human being yet unborn, and upon the other hand the well-being, the health, and it may be the life, of the pregnant woman. Unfortunately it is difficult, if not impossible, to lay down hard-and-fast rules to determine when abortion is inevitable. It is currently believed that when hæmorrhage occurs from a pregnant uterus, and contrac-

tions of the uterus have come on, abortion is inevitable; but I have seen these symptoms subside under appropriate treatment, and the pregnancy go on to full term, with the delivery of a living child and with no ill-result to the woman. In this connection reference may be made to a case reported by Scanzoni, of a woman who was seized with profuse metrorrhagia in the third month of pregnancy. Great numbers of clots were discharged, and, as all hopes of saving the ovum were abandoned, ergot was used in large doses and tampons were placed in the vagina. After thirty-six hours, a sound was employed to explore the uterus; and finally, as the bleeding continued for three weeks, an intra-uterine injection of a weak solution of perchloride of iron was resorted to. Eight weeks later the patient quickened, and presented the distinctive evidences of a pregnancy advanced to the sixth month.\* I, myself, was consulted in a case in which the pregnancy had continued in spite of systematic application to the endometrium of pure carbolic acid, continued over some weeks.

When, in addition to hæmorrhage of the uterus there is a dilatation of the cervix and descent of the ovum, abortion may be considered inevitable. If a portion of the ovum has been discharged, or the liquor amnii has come away, or if septic inflammation has taken place, there is no question that the abortion is inevitable, and under these circumstances attempts to prevent the expulsion of the ovum should not be employed. Especially is it reprehensible to make use of such attempts if the discharges are foul-smelling and the patient is febrile.

The most puzzling cases are those

\* Lusk, *The Science and Art of Midwifery*, 1892, p. 319.

in which moderate hæmorrhage takes place from the uterus, unaccompanied by uterine contractions, and when the general condition of the patient continues good. Under these circumstances it is wise to keep the patient in bed for at least some weeks, before employing measures to empty the uterus. I recall very vividly the case of a lady about three months pregnant, who, on her way from church, was taken with a hæmorrhage very considerable in amount: indeed, she was fearful that a sensation would be created on the street, and so had her husband walk behind her, lest the flow should be so great as to leave a trail of blood upon the pavement. This patient was kept in bed for some weeks, the hæmorrhage persisting in slight amount without other symptoms, and finally ceasing. She was delivered, at full term, of a living child. There can be no objection to temporizing under these circumstances, except that the time of the patient may be wasted through the lack of success of the method employed in preventing abortion. At the same time, too great care cannot be employed lest the persistence of bleeding, slight in amount on any one day, should eventually produce a grave anemia. Also, the temperature should be regularly taken, and other signs of infection looked for, lest an insidious infection should progress sufficiently to become serious before its recognition.

*When is abortion complete?* The classical maxim that the uterus should be emptied of all portions of placenta and membranes, and also of clots, both after labor and after abortion, is just as true now as when first enunciated. In abortions after the fourth month, there is usually little difficulty in determining whether or not the uterus has emptied itself, because both the fœtus and the placenta have

attained such size that an examination of them is of value, and besides, an exploration of the interior of the uterus, in case this should be necessary, can, as a rule, be carried out without special difficulty. During the first three months of pregnancy it is not so easy to determine whether or not abortion is complete. During the first two months, as a rule, the question is not of great importance, because nature usually takes care of the abortion without much aid from the practitioner. In certain criminal abortions, when virulent infection of the endometrium has taken place, this is not true: but in these cases other problems present themselves, and the uterus should undoubtedly be explored and thoroughly curetted to remove the infected decidua, so that the mere question of whether or not a piece of the ovum remains behind assumes a relative rather than an absolute importance. It is during the third and fourth months that the practitioner is most often in doubt as to whether abortion is complete or incomplete. Spontaneous abortions, in which the ovum is delivered entire, present little difficulty, as the intact ovum is ample evidence that the uterus is empty. When the fœtus and the chorion (or the placenta and membranes) are delivered separately, it is not so easy to determine the question, but an examination of the mass delivered will frequently settle it. If the practitioner only sees the patient after the abortion is supposed to have taken place, if hæmorrhage has ceased, and if the cervix has contracted, it is a fair inference that the abortion is complete. Persistence of the bleeding, and a patulous uterine canal, are very reliable evidences that a portion of the ovum is retained.

Unless the ovum be delivered intact, the only absolute evidence that the uterus is empty is that

afforded by the finger when introduced into the uterine cavity. When there is any reasonable doubt upon this point, in abortions taking place about the fourth month, especially if the patient is not under absolute observation, it is best to settle the question by exploring the uterus under full antiseptic precautions. This can be done, as a rule, without anesthesia, and always with its aid. Two fingers of the half-hand should be introduced into the vagina, and one finger into the cavity of the uterus—the uterus itself being steadied through the abdominal wall by conjoined manipulation.

*After septic abortions, when shall irrigation of the uterus be discontinued?* It is universally recognized that in the treatment of abortion when infection has taken place, the uterus must be emptied of all portions of the ovum: and almost all authorities go further and advocate that the maternal decidua should be removed with a sharp curette. Following this thorough curetting of the uterus, douching of its cavity with an antiseptic solution is essential. When this method of treatment is instituted promptly, in a very large percentage of the cases it is followed by the best results. In some cases, however, and especially those in which the treatment has been instituted after considerable delay, the septic processes are not arrested before the infection extends either along the Fallopian tubes to the peritoneum, or through the lymphatics or the veins to the broad ligaments, giving rise either to localized inflammatory conditions in the pelvis, or to general peritonitis, or to septicemia. In this class of cases it is of the utmost importance that too much reliance should not be placed upon the influence of uterine irrigation. Manifestly this can do no good unless it removes septic material from

the cavity of the uterus, or assists in disinfecting the endometrium. When the infectious processes have extended into the deeper portions of the uterus or entirely beyond this organ, they are no longer influenced for good by uterine irrigation. I am heartily in accord with those who believe that uterine irrigations are distinctly harmful in all cases in which inflammation has extended beyond the uterus—the manipulation necessary to irrigate the uterus having a distinctly bad effect. My own experience leads me to believe that, if the uterus has been properly cleaned out and douched in the beginning, irrigations are seldom necessary for more than one or two days, and that if continued longer than this they are a source of harm rather than of good.

*After septic abortions, when shall operation per vaginam or by abdominal section be done?* It is assumed that the abortion itself has been properly treated—by thoroughly emptying the uterus, by carefully curetting the endometrium and removing as much of the maternal decidua as possible with a sharp curette—and that then the uterus has been properly douched, and a pencil of iodoform, containing fifty grains, introduced. If this treatment and subsequent irrigations of the uterus with an antiseptic solution, continued over one or more days, have failed to arrest the septic inflammation, the latter, as a rule, spreads rapidly either along the Fallopian tubes or into the broad ligaments.

The proper management of this class of cases is one of the burning questions of the day: indeed, conditions have not been ripe until the immediate present to properly study this question. Clinical experience has taught what can be expected under these circumstances when the cases are left to nature assisted by



non-surgical measures of treatment. A considerable percentage of the milder cases, especially in patients having a vigorous vitality, will recover either perfectly or partially. In a larger percentage, septicæmia, pelvic or general peritonitis, acute purulent salpingitis, and acute cellulitis and pelvic abscess, are among the usual results.

In localized pelvic inflammation, either in the Fallopian tubes, the ovaries, the pelvic peritoneum, or the broad ligaments, the methods of treatment proper in the individual cases have been pretty well agreed upon by authorities. Proper regulation of the diet, mild purgation, the use of ice or very hot applications over the hypogastrium, the exhibition of quinine and strychnine, and the use of baths, are methods of treatment applicable in all cases. Should evidences of pus-formation present themselves, or should indications appear that the localized pelvic inflammation tends to become a general peritonitis or to give rise to septicæmia, operation is indicated. Up to the immediate present, abdominal section and the removal of diseased structures, followed by irrigation and drainage, has been the accepted mode of treatment. At the present time the advocates of operation *per vaginam* will insist that this is a proper field for vaginal hysterectomy.

The class of cases concerning the treatment of which there is the most dispute just now, is that in which a septic abortion has been treated in the most approved way, including curetting and douching, and in which, in spite of this treatment and the continuance of douching for one or more days, together with the use of proper general treatment, the patient continues to go from bad to worse. The infection spreads from the uterus to the broad ligaments, or perhaps along

the tubes, and the evidences of general septicæmia are apparent and growing more decided. In the class of cases in question there is no attempt at the formation of an abscess, but the case tends to become one of general septicæmia. It has been proposed to treat these cases by hysterectomy, either abdominal or vaginal, with drainage of the pelvis. Under the conditions laid down, I believe this practice to be eminently proper, and that it promises to save the lives of many who under the let-alone practice of the past would die. It is urged that if this doctrine receives approval, many women with septicæmia after abortion will be subjected to hysterectomy without warrant. I doubt this very much, as these patients are so ill that no surgeon will desire to operate upon them, except under the conviction that in so doing the patient's chances for life are increased. The cases coming under this category are those in which the women have been violently ill from the beginning, and who either improve or die within a week after the septic symptoms appear. If operated upon at all, it must be within a few days after the onset of the symptoms.

The milder cases—those in which the type of the septic invasion is less marked and the process tends to localize itself in the pelvis—seldom require operation until the latter weeks of the puerperal month. It has been proposed, however, of late, in such cases to open up the broad ligaments from the vagina, and, in cases of localized pelvic peritonitis due to salpingitis, to open up Douglas's pouch from the vagina, and to pack gauze into the region of the tubes, so as to give free drainage for the products of inflammation. This procedure is so new that experience must determine its value. If,



as its advocates claim, it will lessen the necessity of sacrificing the sexual organs because of the ultimate results of inflammation, it will be a great addition to the surgery of the diseases of women.

The proper treatment of localized pus-collections in the pelvis, whether

of puerperal or non-puerperal origin, is so well recognized that it is unnecessary at this time to discuss the question. The diseased structures must be removed; and in case of broad-ligament abscess, drainage must be employed.—*Therapeutic Gazette*, Jan., 1896.



## Book Reviews.

(All Exchanges and Books for Review should be sent to DR. C. G. CUMSTON, 871 Beacon St., Boston.)

THE INTELLECTUAL AND MORAL DEVELOPMENT OF THE CHILD. Part I., containing the chapters on Perception, Emotion, Memory, Imagination, and Consciousness, by GABRIEL COMPAYRE, Recteur of the Academy of Poitiers. Translated from the French by Mary E. Wilson, of the University of California. New York, D. Appleton and Co., 1896. Price \$1.50.

This little book is one of the International Education Series, published by Appleton and edited by W. T. Harris, LL. D.

It contains a comprehensive study of the subjects indicated in the title. Darwin, Egger, Perez, Preyer, Pollock, Taine and Ferri, have each in turn contributed his share of the facts which make this philosophical consideration possible.

But Compayré himself is not a poor observer. The book is not a mere psychological chronology, interesting and valuable as such books are. While acknowledging the authority of others, he does not hesitate to assert his independence and

frankly state his own opinion, as for instance, where he opposes the idea of the hereditary origin of fear. The thoughtful physician will find the volume interesting and of distinct value in his practice.

A MANUAL OF OBSTETRICS. By W. A. NEWTON DORLAND, A.M., M.D., of the University of Pennsylvania, with 163 illustrations in the text and 6 full-page plates. Philadelphia, W. B. Saunders, 1896. Price \$2.50.

Publisher and author may well be proud of this volume. Convenient in size—it is uniform with the others of Saunders' New Aid Series—750 clearly printed pages on good paper, abundantly illustrated, very many of the illustrations being reproduced from well taken photographs, well bound as usual, the typographical work leaves little to criticise. In the full page plates, the changes of the corpus luteum, the diameter of the foetal head, method of accomplishing rapid manual dilatation and the vari-

ous forms of pelvic deformity are excellently shown. The author has attempted not a large and exhaustive text book on obstetrics, but a manual. Practising physicians are, we believe, tending more and more as they realize the rapid changes and numerous discoveries of medicine, to the purchase of such handy volumes, rather than the complete "systems." They can thus keep abreast of the times and are able to meet all but the most extraordinary complications. The subject matter of the book is up to date, not provincial, well written, and practically complete. The student will find the important points carefully emphasized, while the more unusual ones are mentioned though less prominently. The normal pregnancy, labor and puerperium are first thoroughly elucidated. In the second part the pathological changes, conditions and resulting complications are given with all necessary details. A student familiar with the teachings of this volume will surely be a successful obstetrician. The practising physician will find in it numerous new applications of well known principles, with new devices and methods for meeting obstetrical emergencies and difficulties. Finally the very complete index with numerous cross-references and the comprehensive table of contents make the book effective for ready use at all times.

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FEEDING IN EARLY INFANCY. By ARTHUR V. MEIGS, M.D. Philadelphia. W. B. Saunders, 1896. Price 25 cents.

In this little book, containing a paper read at the meeting of the Phil-

adelphia County Medical Society, Dr. Meigs reiterates his belief in the principle laid down by him nearly fifteen years ago, that human milk never contains more than one percent of Casein. On this basis he then arranged the modification of cow's milk, now known everywhere by his name. The booklet contains definite instructions in the best methods for managing this modification. Hence its special value. He insists on his belief that as the child grows older, the food needs to be increased, not so much in strength as in quantity, and that cleanliness is better than sterilization.

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PROFESSIONAL EDUCATION IN THE UNITED STATES. Washington. Government Printing Office, 1896.

This pamphlet containing "Chapters from the Report of the Commissioner of Education for 1893—4, arranged by A. Erskine Miller," has much to interest the educated physician. Thus we learn that about 8000 new doctors are graduated every year, and that the ratio of medical students to population in the United States is about twice what it is in European countries. It is noted also, that homœopathy is almost wholly unknown in the South, and that in general its graduates are steadily growing relatively less. Exact percentages of the number of students who graduate, of their previous training, of the number of women engaged in the study of medicine, etc., are among the items which make it a valuable addition to one's library.

# DEPARTMENT OF PÆDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

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## Original Communications.

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### A GLANCE AT ELEVEN CASES OF LARYNGEAL DIPHTHERIA.

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DOUGLAS H. STEWART, M.D.,  
NEW YORK.

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IF we are honest, we must acknowledge that from a clinical point of view, no disease is so difficult of recognition in some cases, nor so easy in others, as diphtheria. Neither is any so pronounced or so insidious. We have all seen an apparently simple pharyngitis, after a period of twenty-four to forty-eight hours, present the much dreaded membrane. That all such cases are diphtheritic from their beginning, there is great reason to doubt. It is quite possible that any case commencing as a follicular tonsilitis, for instance, may furnish a fruitful soil for the implantation of diphtheria bacilli. Nor is the microscope a prompt and unfailing guide. Men of large experience have again and again asserted that waiting for confirmation of our suspicions, from the bacteriologist, means that the disease has progressed beyond control. It is not claimed that the diagnosis cannot be made in the laboratory but only that owing to the slowness

of the process it is frequently made too late to be of any service.

There are many cases of mild diphtheria which escape our observation and even our recognition. Cases which are home treated and self-curative. Therefore this disease has a myriad of forms of varying intensity—all the way from the "sore throat" cured (sic.) by tying a stocking around the neck at bedtime to the complete over-whelming of tissue and body by bacilli and septic products. Although pharyngeal diphtheria may be severe or mild, I think we may take it for granted that when the larynx is invaded we are confronted by a disease which is always grave and frequently fatal. Hence I have selected from my notes only laryngeal cases—treated by antitoxin. These cases are eleven in number. Ten recovered and one died. As I always immunize other children in an invalid's family, there have been but two instances where the malady was

communicated and in those cases contagion had taken place before my first visit. These two yielded readily to prompt treatment.

In all of the eleven cases the membrane appeared elsewhere than in the larynx alone. The ages varied from sixteen months to seven years. Diagnosis was confirmed by bacteriological culture in ten cases and was uncertain in one. The antitoxin was administered in from one to five days after the first appearance of the disease and in from one to five injections. The total quantity amounting to one thousand units as a minimum and to fifty-four hundred as a maximum. The preparations used were Gibier's, Board of Health, and Parke, Davis and Company's. There was a hoarseness in all the cases. Complete aphonia in seven and partial, i. e. not absolute in four. Stenosis in all. Intubation in four cases. Tracheotomy in none as I much prefer the intubation. The tube remained in the larynx from a minimum of six days to a maximum of ten.

Broncho-pneumonia was present in six cases. Paralysis appeared in none. Albuminuria in all the cases. Casts (hyaline and epithelial) in two.

The fatal case is perhaps the most interesting of all. This was a well marked case of diphtheria and sepsis. The intubation was performed by Dr. A. B. Deynard on August 7th. The doctor remarked "When this case dies in a day or

two—let me know." This is the only case in which I have used the anti-streptococcic serum, but if it always acts as it seemed to, here, we have an adjuvant to the anti-diphtheritic serum which is very valuable. The child was in very poor condition from gastro-enteritis (summer diarrhoea) and the weather was very hot and humid. The temperature reaching  $101^{\circ}$  in the streets. I quote from my notes taken at the time.

"August 9th, 1896. The child's maximum—septic—temperature was  $107^{\circ}$  (rectal) but the anti-streptococcic serum fixed that. The neck is so swollen that the head seems to be resting on a cushion. Cellulitis and adenitis. Larynx, pharynx, and nares full of exudate."

"August 11th. Child much improved—membrane hanging from pharynx in strings. It can be easily removed but I believe it is better let alone."

"August 13th. Child died from heat-exhaustion. This has been a record breaking week on prolonged high temperature. The room was never under  $90^{\circ}$  and every day reached  $100^{\circ}$  or more."

This case speaks for itself. A case of cholera infantum followed by diphtheria and septicæmia—living in an atmosphere of from  $90^{\circ}$  to  $101^{\circ}$  and all that means in New York City. I can not attribute its death to anything but its age, sixteen months, and heat exhaustion.

As to the antitoxin used, my prejudices are strongly in favor



of Parke, Davis & Co's, so much so that I have determined to use no other. My experience has been that it is not only reliable but of smaller bulk than other preparations and this is a great factor as the shock of injecting large quantities of fluid into a delicate child must be considerable. At any rate it is an unnecessary and painful procedure; and then the bulb tubes are so much easier for the operator than the old style bottles.

The directions for use accompanying each vial seem to be misleading. Thus one would think that one thousand units would suffice for a case. This is rarely true. The only rule for administering antitoxine is this. In a case of diphtheria, whether laryngeal or not, give one thousand units every day until you see a perceptible improvement then give on alternate days until sure of recovery. In septic cases it is very necessary to give the anti-streptococcic serum. Give the antitoxin in the morning

and the anti-streptococcic in the late afternoon. As may be seen in seven of my cases intubation was unnecessary, a fact which I attribute to the early and prompt use of the antitoxin. As to paralysis my cases seem to prove that if sufficient serum be given, it will be either aborted or mitigated. Of the value of antitoxin I am convinced so firmly that when it is questioned my mind at once jumps to three conclusions. First, either insufficient amounts were injected, or second, the preparation was unreliable, or third, the physician waited for bacteriological confirmation before inaugurating the treatment. With the Parke, Davis, preparation I have found little or no reaction and no untoward symptoms following its use. Therefore, my studies in the matter lead me to resolve that my rule shall be for the future, "In suspicious cases, use the syringe first and the culture tube afterwards."

111 WEST 64TH STREET,







FIG. I.

Impetigo Contagiosa—Crusted Patches, Pigment Stains, Bullæ.

## IMPETIGO CONTAGIOSA UNIVERSALIS.\*

BY CHARLES W. ALLEN, M.D.,

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NEW YORK.

GENTLEMEN: —

LOOKING over my records for a case which might serve as a text for a few remarks and as a pretext for having anything at all to say at this time, I selected the following as presenting sufficient points of interest to warrant its being put upon record. Indeed it is not so long ago that impetigo became generally recognized as a contagious disease, and today even the unusual bullous, gyrate and universal forms are not so well known that one need apologize for devoting a few moments to their consideration. Differing from the impetigo which usually presents itself to our observation, and which runs its course in a few weeks at most, we now and then meet with instances of a bullous form of eruption which must be regarded as the same affection in a different form. These cases have undoubtedly, at times, been mistaken for and described as pemphigus.

When a number of cases have been observed simultaneously, or following each other in rapid succession, in a given locality, the designation epidemic pemphigus has been applied, and, especially in tropical countries,

pemphigus contagiosus. While there was no contagion, either passive or active, so far as is known in the following case, referred to me by Dr. S. J. O'Neil, of New York, I believe it to be an instance of this rather rare variety of impetigo.

Mary E., five years of age, had been well until four months before I first saw her, at which time she had been vaccinated by a board of health physician. Before the vaccination wound had healed "white blisters," as they were described by the patient's aunt, began to form in the neighborhood and gradually spread over various other regions of the body. Since this time the little girl has never been free from the eruption, though continually under treatment, and despite an intercurrent scarlatina. Improvement has, however, been frequently noted, but new crops of boils would keep coming out.

The *family history* showed death of the mother from what was termed an "abscess in the genital region."

The father is said to have some form of kidney disease.

The parents as well as the brothers and sisters had always been free from skin diseases.

Examination of the body showed the entire anterior surface, excepting

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portions of the hands and feet, especially the palms and soles and the anterior portion of the scalp, to be implicated in a scattered vesicullous eruption. At the time of examination it was most active in the regions of the face, especially the chin, wrists, ankles, and dorsum of both feet.

The remaining surfaces were covered with pigment stains, scratch marks, and greenish, yellowish and reddish crusts.

The bullæ when newly formed were tense and with clear contents, but unless ruptured in an early stage they became turbid and flaccid. After rupture the area corresponding to the site of the original bullæ, or, if very large, perhaps only its central part was occupied by a red, denuded, tender and painful surface. At the margin spreading would occur and the epidermis would become raised or slightly undermined, the fluid escaping at the free border drying into light wavy crusts. The central part would in time cover over with a dirty crust made up in part of blood elements.

The primary tense bulla is well shown upon the thighs of Fig. I and upon the foot of Fig. II, in the photographs. At first there was little or no erythematous zone surrounding the bullæ but as exudation took place at the periphery a narrow, bright red band would spread out before the extending process. This rarely exceeded one sixth inch. Occasionally numerous smaller lesions would show about the larger bullæ,

and these satellites might by coalescence develop gyrate or circinate or somewhat serpiginous forms, but this was the exception rather than the rule. Two larger lesions running together would, however, often give a wavy outline to the resulting patch and subsequent pigmented area. This resulting pigmentation, which is well shown in the photograph, was a marked feature of the case and one which I wish especially to call attention, since in Dr. Elliot's case (*Journal of Cutaneous and Genito-Urinary Diseases*, May, 1894) stress is laid upon the absence of pigment stainings.

Glandular swellings were pronounced in the region of the neck, groins, etc.—In Fig. 1 a bubo will be seen in the groin upon the right side.

The anterior aspect of the body was much more involved than the posterior, while the hands and especially the fingers remained almost wholly free; a rather important point it seems to me if we believe that the eruption is spread by scratching.

*The diagnosis* of the bullous form of impetigo contagiosa originating in vaccination was made.

*Treatment.* Applications of Pyoktanin in 1-500 strength were made to the trunk and extremities, while Unguent. Hydrargyri Ammoniat was ordered for the face, ears, scalp and neck.

The case was first seen Sept. 28. On Oct. 2 slight improvement only was noted. The region of the vulva is in a very tender and irritable con-

dition, the labia being much swollen, inflamed and covered with vesicles, many of which have cloudy contents almost purulent in appearance. A dilute ammoniated mercury ointment was ordered for these parts, and a 1-8000 bichloride wash for portions of the general surface. *Liquor Potassae Arsenitis* was now begun in minim dose every three hours, and gradually increased.

After three days there was great improvement, especially in the region of the vulva.

Oct. 19. The surfaces treated with bichloride solution have improved more rapidly than those upon which *Pyoktanin* solutions were used. The latter was therefore discontinued.

New bullæ continue to appear especially at the margins of previously affected surfaces, and a few frank vesicles continue to develop upon pigmented areas, which like brands indicate the approximate size and shape of the causative agency and show just what regions have before been implicated.

Oct. 30. *Fowler's Solution* given until now in three drop dose every two hours, was discontinued as no good effects could be attributed to its use.

Immediately following this, there was such a pronounced eruption, attended with great itching of the skin, disturbed sleep and digestion: the child appearing generally out of sorts, a few days later *Fowler's Solution* was again resorted to, beginning with one and a half drops every two hours and gradually increasing. Im-

provement seemed to begin at once.

Ten per cent. each of zinc oxide and liquid tar in plasment was substituted for the mercurial ointment and under this the face lesions improved rapidly.

Nov. 18. *Arsenic* now at four drops every two hours has caused puffiness of the lids, and it was therefore decreased to three drops every four hours and further decrease ordered if it became necessary. Arms and legs bandaged in bichloride solution, 1-1000, as an occlusive dressing.

Dec. 3. The only active lesions now upon the body are a bulla on the right wrist and one on the right foot, but scattered patches of infiltrated skin remain. *Fowler's Solution* now at four drop dose was ordered to be gradually decreased.

Dec. 10. *Fowler's* at two drops. Entire freedom from eruptive lesions.

Dec. 17. Few pustular and vesicular lesions especially about genital region. *Dorsum* of feet especially but other parts as well are more or less dotted with lesions of millium, such as are often seen in any skin area subjected to long irritation. *Fowler's Solution* ordered stopped.

Dec. 28. Just above the left ankle on the inner side is an excoriated spot surrounded by flattened bullæ in a circle just as is seen in pemphigus circinatus; on the right ankle are two small bullæ over the instep and one on the *dorsum* of the foot.

Jan. 7. A crop of lesions is now present which are said to have come out in a single night upon the feet, wrists, chin, genitals, etc. Some show

serpiginous and circinate forms with a central crust corresponding to a lesion whose bulla wall has flattened and dried or has been rubbed off. The condition at the time resembled in a measure that shown in the plate of Crocker's atlas which I now pass for inspection.

Glands in the groin are again much enlarged.

Ten per cent. Ichthyol in collodion was now painted over all the affected areas, and as the patient was going into the country the arsenic was stopped.

In March I had a report from the family that they had continued with this application for about a month when the skin became healthy. No new lesions appeared and the patient has remained well since.

The striking features of this case are the marked resemblance to pemphigus and uniformity of initial lesion in the persistent cropping out of fresh eruptions, despite vigorous and continued remedial measures.

Transfer of the contagious elements from one region to another in the act of scratching would seem strongly indicated by the fact of almost entire freedom of the back throughout, and by the further repeated observation that in the exacerbations which occurred from time to time, frank vesicles or bullae never developed upon previously healthy skin at a distance from older lesions, but showed themselves almost exclusively at the margins of former patches or upon the pigmented parts which had been already implicated.

This would also strongly indicate it seems to me, that micro-organisms, remain in the tissues after cure of the active lesions which they have caused, and are again called into activity by intercurrent conditions which render the tissues favorable to their renewed growth and development.

If we had before us a systemic disease, an affection under the sole influence and control of the nervous system, a blood dyscrasia or other condition depending upon internal causes we would surely not expect it to act in just this way. Then, too, although arsenic and other internal remedies appeared at times to act favorably, careful experimental observation forced me to the conclusion that local anti-bacterial remedies and particular ones more than others, and these applied in particular ways, especially as occlusive dressings furnished the means of cure, while all internal measures were but contributory to this result.

The excellent photographs, which I pass, were kindly taken for me by Dr. Fox to whom I desire to express my indebtedness.

While the eruption occurred in a more or less erratic fashion, there appeared to be a decided tendency to exacerbations or to the coming out in crops at varying intervals. These outbreaks were preceded or accompanied by general systemic disturbance, restlessness at night, itching of the surface and some digestive disturbance. During the whole course of the disease the child's general health was decidedly below par.

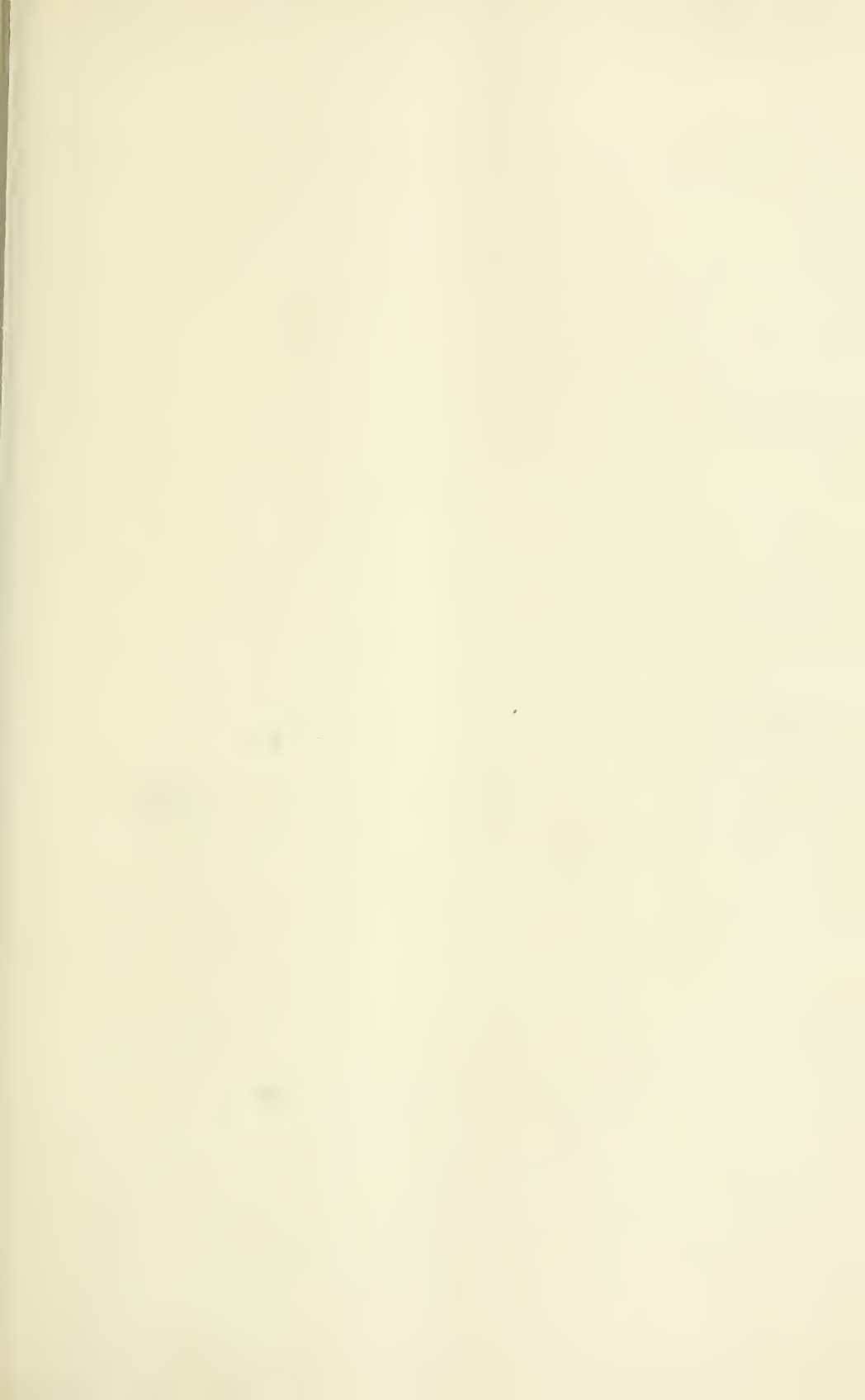






FIG. II.  
Impetigo Contagiosa involving the whole surface of the body.

It was very difficult for me to decide whether the renewal of eruptive elements was a cause or effect of the pruritus, scratching, restlessness etc. After denuded surfaces succeeded the bullæ, the pain surely affected the little one's general condition, but there was a distinct history of general pruritus and scratchings of unprotected parts, as a rule the night before a new crop would make its appearance.

This seemed to me too short a time to warrant the supposition that transfer of infective elements took place during the scratching just before the outbreak.

It seems quite possible that the symptom of itching and the scratching it induces are, after all, not causative factors in a given exacerbation, but rather the result of the local irritation incidental to the process of formation of bullæ and vesicles.

The suggestion has been made by Dr. Fox that in this exacerbating form of generalized eruption the micro-organisms have gained entrance to the general circulation and in some way not yet understood, produce their effects in a cyclical manner.

At any rate I think we may assume from the recrudescence of lesions in and about the margins of still slightly infiltrated and pigmented areas, that micro-organisms remain localized in these tissues, until conditions prevail favorable for their active manifestations.

We have, as an etiological factor, vaccination, and this has been observed in others of the few recorded instances

of this bullous form, (*Elliot, Journ. of Cut. and Gen. Urin. Diseases*, May, 1894, and others.)

The staphylococcus pyogenes aureus, Crocker says, may always be found in the turbid bullæ-contents and in the crusts, but whether any other micro-organism constantly exists to exert a specific influence has not been determined.

A suppurating lesion or wound would seem to be required to enable the affection to start and secure a foothold, although the primary lesion produced is always a bulla. Crocker states in his account of the disease that the primary lesion is a tense bulla, soon becoming flaccid, and describes his impetigo contagiosa gyrata as a "bullous" affection. Still in his description of the case he says "the earliest lesion was a papule the size of a hemp seed with only a slight indication of vesiculation." Further on he speaks of a group of papules in the popliteal spaces. In my case I do not remember to have noted any papular forms of efflorescence.

There was no febrile accompaniment to the various exacerbations.

Dr. Payne, President of the Dermatological Society of Great Britain and Ireland, in his introductory address before the society in May last, give an ingenious explanation of the special and peculiar virulence shown by the micro-organisms in impetigo contagiosa. The difference in action of the staphylococci in this disease and elsewhere, especially as they exist in their saprophytic character, depends upon a gradual evolution of the viru-

lence. A given wound may suppurate by reason of the saprophytic cocci present at the time. The cocci cultivated in this local seat of inflammation become sufficiently virulent to produce vesicles and pustules in the neighborhood. Transferred by the nails to the face just such a classical impetigo contagiosa results, as that which might be conveyed by inoculation from another person and be quite as capable of transmission to others. Cultivation with abundant access of air seems to give increased virulence to these microbial organisms. Transmission from one case to another in rapid succession according to a well known pathological law still further brightens their virulence till at length, the acute, contagious and apparently specific disease results."

Until a specific microbe is dis-

covered the preceding explanation of the matter seems sufficiently scientific and plausible.

The objection to the term pemphigus for these cases is that the latter implies a grave systemic disorder, while the condition here is one of benignity, occasioning only at times constitutional reaction due to the pain and discomfort of the actual lesions, and that which may be accounted for by the occasional absorption of deleterious matter by the denuded surfaces.

Acute febrile pemphigus has an entirely distinct train of symptoms and chronic pemphigus, while it may be at times recovered from, must be placed among the most severe and fatal of the skin affections.

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## INFANT FEEDING : \*

### The Anti-Dyscrasic Action of Cow's Milk.

M. F. CUPP, M.D.

THE word *dyscrasia* means a general state of bad health, a low or depraved state of nutrition, without the presence of particular pathological changes, or actual constitutional disease. The depression of the vital functions may be immediately or remotely due to scrofula, tubercle, syphilis, or cancer, or to other and less definite morbid alterations.

At the outset it is conceded that woman, under a suitable environment, with full integrity of her organism, is better fitted to furnish from her store the sustenance for her child than is any other creature. But unfortunately, owing to enormous and injurious pressure of social and other influences : faulty educational systems ; lack of adequate physical training ; feverish and dissatisfied mental state of the average individual, surfeited with extravagant ideas of her social standing, swelled with pride ("lust of flesh, eye, and pride of life") ; in short, woman degenerated, she is too frequently unfit to perfectly fulfil her maternal duties.

Again, woman affected with constitutional disease is unfit to nurse her infant, and even with those who are apparently only anæmic, the "pale, delicate woman," when absolute cer-

tainty of diagnosis is unattainable, and the means for milk-analysis are not at hand, it is safer to take no risk. The infant in such cases will almost invariably do better on artificial food, and especially when it has failed to thrive on breast-feeding, if the signs of dyscrasia are present in older members of the same family. Mental sluggishness, unless pronounced in the parents, should likewise constitute a barrier to maternal nursing. Then, too, a "frail mother" may, through her intimate relation of breast-feeding, unfavorably impress the organism of her infant, so that it would seem safer to err on the side of artificial feeding, thereby insuring a vigorous development. A feeble body can never be a desirable heritage.

A prime essential in considering the question under discussion is that the mammary secretion is constituted of materials derived from the tissues of the mother. It would seem to follow that the normal constitution of the milk must depend on a normal state of these tissues. There must, evidently, be perfect protoplasmic integrity on the part of the mother to insure a healthy product. Then when it is remembered that a majority of women are, to say the least, below the par of physiological health, while the nutrition of many is enfeebled by

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actual disease, the paramount importance of measures designed to obviate resulting defective growth becomes readily perceptible.

I can conceive of no reason for discriminating between the advisability of rejecting the milk of a wet-nurse on the ground of temperament, general health, or poor quality of milk, and that of rejecting the mother's milk under similar conditions. If the infant in the former case should be placed upon artificial food, so it should in the latter, since all the qualifications of a good wet-nurse should likewise pertain to the mother.

In addition to the constitutional diseases above referred to, as exercising a pernicious influence on the infant, mention should be made of lowered states of nutrition from any long-continued drain, as lactation, menorrhagia, chronic ulceration, chronic diarrhoea, diabetes, neurasthenia, excessive venery, and any other morbid influence affecting the general health of the mother. In all these will be found flagging energy from malnutrition and poor blood-states. The various metabolismisms on which the essential changes of blood and tissue formations depend are performed with decreasing force. As a consequence the composition of the milk is not up to the normal standard, it contains too large a percent. of albuminoids, or too low a percent. of fat.

In the matter of deteriorated health and waning bodily vigor none are without sin, although the sin of some may be of less deep a dye

than that of their comrades. This may be well denominated an age of artificial living. Men have forsaken the primitive simplicity preferred by our fathers, and have essayed to cradle the infant capabilities of the race in a universal incubator, applying every stimulant and goad that a hypercultivated ingenuity can devise. The result has been seen in a universal sensitiveness of the delicately wrought, highly complicated nervous mechanism, so that it responds to many unfavorable influences that might otherwise prove innocuous.

There has taken place, as a consequence of this overwrought state of the nervous system, a more or less constant physical involution, which now threatens with degeneracy our entire race. Indeed, it is evident that physical degeneration has affected more or less each individual. This retrogression is doubtless not equally great in all parts of the world, nor even in the same community, not being at all times operative to the same extent. There are evidently periods characterized by a spontaneous, but transitory, increase in the vigor of those most subject to these baneful influences. But with a wrong civilization as the environment, the decaying powers have soon succumbed, and the onward sweep of fatal customs has been practically unopposed.

And there are signs on every hand which seem to indicate that we are nearing a climax in this unnatural state. Thus far, by reason of various compensating circumstances we

have failed to feel the full effect of the incessant attrition that is wearing away that grand structure, the human body. The mental faculties have received such concentrated attention, their achievements have been so brilliant, so wonderful, that the progressive vanishing of the bodily powers has been either altogether overlooked or ruinously underrated.

But it is manifest that mind must soon totter and fall from its exalted pedestal with the decay of its physical basis. This being true, the day is not far distant when we must start down the decline, intellectual power diminishing until, after a long, dark night of mental feebleness, we enter another cycle of upward tendencies. With these things in view we are confronted by the question: How shall the hyper-civilized mother nourish her infant? It may be that the latter, while born free from the presence of pathological changes, is frail, puny, and lacking in the signs of robust vitality. If such a child be placed at the breast of such mothers as have been described, we simply ignore the lessons of the age, and make a direct bid for further and more extensive degeneration in the future man.

Some such fortuitous event as marriage with a well developed individual may later redeem, in a measure, many isolated cases. But it is after all only a bare chance, much more likely to favor the opposite effect, to say nothing of the wrong done the race of the individual whose rugged form has

proven so timely a rock of refuge.

But we are not without resources. Thanks to the indefatigable labors of scientific observers, we may with reasonable assurance of success, resort to artificial feeding to stay the progress of decay until we have learned to eschew the fret and worry incident to the wild struggle for place and power now going on.

First and foremost in the list of means stands the invigorating action of cow's milk. It being the basis of most artificial foods intended for nursery use, it may well be regarded as the only one worthy of extended consideration here. For when it is found necessary to pass by cow's milk in the choice of an appropriate substitute for the mother's milk, since all substitutes that are worthy of consideration have cow's milk as their basis, the selection resolves itself into a mere question of detail in their preparation.

At this point it may be well to state that the subject of feeding infants on cow's milk will be here considered from the position of the country practitioner, inasmuch as the observations which serve as the groundwork of this paper were made on children born in a country district, and who were consequently removed from the prevailing influences found in large cities. The care of the city born infant, with its immeasurably greater complexity of environment, is left to the discussion of my more competent urban confrère.

In country practice it is not always possible to secure competent analysis of the infant's food, but here we may

avail ourselves of the clinical test, as shown in the rate of development and general condition of health. A fairly good guide is the consideration of other children of the same parents, where these exist, as shown in the puny, stunted, cachectic and usually stupid examples of wrong or inadequate breast-feeding. These the writer holds as reasonable grounds for relinquishing the breast for artificial food. Each individual case should be decided strictly on its own merits, regardless of the doctrine that human milk is the superior aliment because it is the "natural food."

One reason for the frequent failure with cow's milk is the difficulty of preventing anxious mothers from over-feeding, which is a most common error. The effects of irritating detritus splitting up into various hurtful compounds is charged up to the unoffending milk, which, in a large proportion of the cases will be found to agree finally if properly managed.

It must be borne in mind, also, that the mother's milk is received direct from its source, sterile, and at the temperature of the body, while cow's milk is usually allowed to undergo changes from long standing, and as ordinarily obtained, contaminated during the process of milking. Then a careless or ignorant nurse frequently permits it to flow from the feeding-bottle too rapidly to secure thorough insalivation. We must not too hurriedly draw conclusions concerning the advantages of breast-feeding from arguments based on analogy, since the lower animals breed and

suckle their young under conditions radically different from those affecting the human being. This is true whether we view the matter pro or con. The young of animals are conceived under the immediate eye, as it were, of the Great Mother, the gestation period usually being passed under conditions strictly physiological, and that conduce wholly to the integrity of the physical constitution, the life of the dam being of the simplest character conceivable, purely vegetative and unruffled by the myriad trying problems which continually vex humanity. Nurture the human infant amid the serene haunts of nature; rear it in absolute simplicity; sweep away the tentacled parasite of artificiality; and you will have approached the conditions of uninterrupted growth that marks the development of animals. In order to effect this it is not necessary that mankind revert to the state of the savage, whose physical condition is often as deplorable as that of the excessively civilized, but that they realize the importance of husbanding the powers of the body and of propagating it in its native vigor. There need be no lessening of the intellectual force. On the contrary, judiciously trained, the mental powers will tend to become stronger because of their former physical foundation. The present systematic neglect of the body must cease; the infant must be permitted to gambol with all the freedom of the lamb; the instruction must be exclusively oral, training the faculties for observations and percep-

tion at the same time that the muscular system and bony framework are encouraged to a rugged development by such spontaneous movements as the circumstances may suggest. Only thus can we secure a sound mind in a sound body. Continue the present ruinous system, and the human race is foredoomed to a woeful and universal state of degeneration within the next 500 years.

It has been seen that a feeble, or dyscrasic state may be the outcome of an inadequate quantity of nutritive elements in the mother's milk. It may lack the energizing quality possessed by the strictly normal fluid. This, if true, being certainly due to differences in the physical properties of the secretion, unless we ascribe to the act of nursing a certain exhilarating power, must appear only in the measure that the secretion has its physiological elements fully represented. But the clinical results of rational bottle-feeding would seem to cast doubt upon the former view.

Cows well fed and housed are not subject to the unfavorable influences and emotions that so generally affect woman, and which prejudice the growth and welfare of the nursing. The extraneous influences that may affect unfavorably the attempt at artificial feeding having been diligently looked to, the consideration of the means of transmitting the food from its source to its receptacle, the infantile stomach, may be taken up.

The graduated flask, holding only a sufficient quantity for a single feeding, should be used in preparing the

food for its reception by the infant. That it should be sterilized goes without saying. The requisite dilution with lime water or simple sterilized water, and the addition of the proper portion of milk, sugar and cream should be intelligently attended to. In a country practice it will generally be found necessary to rely on the clinical test to determine the value of our efforts? It was in this manner that the writer had his attention directed to cow's milk as a food of superior value for nourishing infants in cases where the mother's health rendered attempts to nurse her child inadvisable. He soon noticed a remarkable difference in children of the same parents. Those fed on a good quality of cow's milk not only appearing much more vigorous and healthy, but also manifesting such striking differences of temperament as to astonish him. In these first cases no attempt was made to secure sterilization, nor to modify the food in any manner, but the season proving particularly favorable all went smoothly. They were to be classed among those instances of good results despite the absence of the usual precautions. The first instance was that of a multipara who succumbed to consumption a few months after her confinement with her fifth child. The other four were pale, stupid, cachectic-looking, and affected with chronic rhinitis. The child born while its mother was declining under a fatal malady was as unlike its fellows as lead is unlike gold. It possessed sound mucous membranes, was uni-



formly vivacious and sportive, its eyes sparkling, its cheeks ruddy, and its skin clear and pure. In short, outside the facial conformation one would never have suspected their kinship.

It soon afterward occurred to me that even better results might be attained by a strict and intelligent supervision of the feeding, with careful attempts at modifying cow's milk to bring it more nearly into conformity with the chemical composition of human milk. This was in the year 1885. Since then the labors of investigations along this line have been carefully noted, and an attempt made to keep pace with their discoveries and published suggestions for the improvement of cow's milk as an article of diet for infants.

For the past five years a mixture closely resembling that known as "Meigs' mixture" has been preferred in most instances. Its composition is known to all progressive physicians, and need not be given here. But the milk of a healthy cow (one of common breeds preferred) has always been regarded by me as the *sine qua non* of artificial infant feeding, and the results in nearly every instance have been of the most gratifying

character. Since adopting this method of feeding in appropriate cases I have not seen a single death occur from the diarrhœal disturbances usually incident to bottle-feeding, although numerous instances of severe sickness brought about by injudicious attempts to feed a seven months old child a quart of milk in a single day have come to my knowledge. In this time I have had occasion to recommend the plan to many persons where the mother, or father, or both, were affected with scrofula, tuberculosis, or syphilis, and have seen their children thrive with amazing constancy, while such lusty examples as have resulted when nothing more than a delicate constitution, feebleness without definite cause, or some one or more of the various exhausting drains enumerated above were the chief obstacle in the way of improvement, have been found to be "goodly objects to look upon."

And in this manner the writer hopes to contribute a mite toward the better development of posterity and to the protection of the present generation against the inroads of artificial, effeminate, and other vicious habits of life.

EDINBURG, INDIANA.



## Review of Paediatry.



### Deafness of Children.

Dr. H. A. Alderton, of Brooklyn in an address before the La. State Med. Society, says: The first impression given by a hard-of-hearing-child, to those who come in contact with it, is one of inattention. They come to regard the child as being somewhat dull and absent-minded and imperceptibly get into the habit of speaking sharply and bruskiy in order to attract its attention. The child so often reproved for not paying attention, to things it has not heard, or for not doing things it was not aware it had been requested to do. There often grows up a feeling that the child is "putting on" to a certain extent. The child gradually begins to appreciate the feelings it inspires, and this tends still further to limit its receptivity by rendering it sensitive and fearful of ridicule and harshness. The too frequent use of these last breed a carelessness of reproof and of desire to please on the part of the child, who too often feels itself the victim of thoughtless injustice. At school, the child, because of the inability to hear the teacher and fellow pupils, becomes inattentive in fact, and, losing instruction, does not progress as do the others. Falling behind in the studies and having the appearance of being dull and slow-the teacher's effort to instruct becomes more and more perfunctory and valueless, and unfortunately, even at times intolerant. The child, losing interest in what is going on around, finds the time hanging heavy on its hands, and is, as a natural consequence, led to expend its mental

and physical energies in ways that are forbidden by the discipline of the school. This brings forth reproof and punishment, yet for the same reason the child is tempted again and again to run the chances of incurring these, because of its lack of other interest or occupation.

At play, discovering an inability to take part in the games because of its infirmity, the child gradually loses interest and follows pursuits which do not require the co-operation of others. Lacking thus the incentive to exercise which comes from companionship and the attendant competition and collaboration, malassimilation and malnutrition increasingly make inroads upon the system in general.

At home, where one should naturally suppose that great allowance would be made for this infirmity, we find that it is usually the last place in which it is acknowledged and the place where it is least tolerated. By the time the parents are willing to admit it is not dullness, but deafness that is the trouble, they have got into the habit of regarding the child as stupid, inattentive, and insubordinate. The other children plague and ridicule, and the parents, fatigued by a conscientious effort to discipline and control, usually deprecatingly fall into a half-hearted determination to let things take their own course. Could one but hold up the picture before the eyes of the parents while yet the child was in a condition of possible recovery, how anxious and grateful would they be for any suggestion of means to prevent the many

serious results. But, unfortunately, the case progresses so gradually that before they are aware, the damage is done, and all the regrets and recriminations are useless. The habit of the child and of the parent is formed and cannot be amended.

The effect of these various influences upon the development of the child is unfortunate in the extreme. The mind, deprived of its customary cultivation, ceases to expand in proportion to the growth of the individual; the child is "backward." The disposition, constantly disturbed by contempt, ridicule, harshness or over-consideration, becomes uncertain and unreliable, sensitive and uncontrollable. The bodily health, by want of fresh air and exercise, mental worry and disturbance, becomes impaired: the osseous, muscular, vascular, respiratory and nervous systems all feel the effects of malassimilation and malnutrition—especially when the deafness, as it so often is in childhood, is combined with, or due to development of adenoid growths in the naso-pharynx. All these influences, combined, result in producing the narrow-chested, small-boned, feeble-muscled, and mentally inactive specimens we so frequently see in the dispensary clinics.

When we come to consider the sphere of prophylaxis in these cases, the criminality of the negligence which allows of such results becomes more and more apparent. It is regarded as no excuse that a law-breaker is ignorant of the existence of the transgressed law. Neither here should we condone the criminal negligence of the parent or the teacher. As things are, it is impossible to affix a penalty; but, for the future, all our efforts should be directed to eliminating the matter from the hands of careless or incompetent instructors. There should be periodical compulsory examina-

tions of school children for the discovery of all such defects as poor eyesight and difficulty of hearing. The parents of children found to be hard of hearing should be immediately notified of the fact and strongly recommended to place them under the care of a competent aurist, either privately or at one of the numerous public institutions. No child need go neglected. As ineffectual treatment is often worse than no treatment, communication should be had with the family physician, recommending that the child be at least examined, if not treated, by a competent specialist.

Coincidentally, it should be the duty of the local Board of Education to form a special class in the public schools for the instruction of these handicapped children, by teachers trained especially for this purpose. It is not a matter to be left to private enterprise and charitable institutional methods. The child with impaired faculties is as much entitled to public instruction as the healthy child: the fact that unusual methods and special teachers are required should be no rightful bar to its claim. Let these things come to pass, and the reproach of preventable deafness would pass from us with all its attendant expense to the body politic.—*The Laryngoscope*, August, 1896.



### The Treatment and Education of Mentally Feeble Children.

From a brochure by Dr. Fletcher Beach of London, kindly sent us by the author, we take the following:

The treatment consists of (1) Attention to hygienic conditions. (2) Adaptation of the principles of medicine to the infirmities which exist in this class of patients. (3) Improvement of the physical defects and imperfections. (4) Education and

training of the moral and intellectual faculties.

These methods though apparently different from one another require to be judiciously combined, so that the greatest possible amelioration may be effected.

#### ATTENTION TO HYGIENIC CONDITIONS.

It is necessary to secure for these children a healthy site on gravelly soil, a good water supply, perfect sanitary arrangements and well-ventilated rooms capable of being warmed during the winter months. Frequent warm baths are most necessary, in order that the sebaceous and sudoriferous glands and the capillary circulation may be kept in good working condition.

The diet ought to be plain but liberal and should consist of a good supply of milk, oatmeal porridge, and except in epileptic cases, of meat which should be cut up, or if there be difficulty of mastication found, through a mincing machine.

Cocoa and milk and bread and milk are important additions to the dietary as are also eggs, vegetables and some fruit. Alcohol is rarely required and should as a rule be dispensed with except in the case of sickness.

As the circulation is feeble, the clothing should be warm and flannel worn next the skin.

Attention must be paid to the condition of the hands and feet during the winter months, as these children are very liable to chilblains. Mittens in the house and worsted gloves out of doors are required for the hands, while the feet should be incased in strong boots, lined, if necessary, with some material capable of retaining heat. Sleeping, socks when the children are in bed will also be found useful. Exercise is most essential and should be stimulated in every

possible way. During the summer as much time as possible should be spent out of doors, and games of every kind should be played. During the winter, at least two hours daily should be spent in the open air, or if the weather is unfavorable, dancing and games involving active use of the limbs should be encouraged.

#### ADAPTATION OF THE PRINCIPLES OF MEDICINE TO THE INFIRMITIES WHICH EXIST IN THIS CLASS OF PATIENTS.

The phthisical tendency and scrofulous condition must be treated by a liberal diet and the administration of cod liver oil, steel wine and maltine.

Pneumonia and bronchitis, diseases frequently met with, should be combatted by remedies of a stimulating nature, care being taken to watch attentively the character of the pulse and respiration and the range of the temperature. Milk is the best food in such cases and is usually taken with avidity. Diarrhœa of a watery character demands astringent remedies such as catechu and kino: while the fermentative variety is best treated by small doses of carbolic acid. When the diarrhœa is obstinate, milk should be cut off entirely and strong solutions of pearl barley given instead.

Epilepsy, a frequent complication in these children, is remedied to a great extent by giving bromide of sodium, to which may be added small quantities of borax with good results: but it is necessary to persevere with these remedies for long periods. Meat should be excluded from the dietary of children who suffer from this dire complaint, and eggs, bacon, milk, fish, fowl and sago, tapioca, rice, custard and other simple puddings, be taken instead.

The aphthous mouth and spongy gums require the application of strong



solutions of chlorate of potash, and the different skin eruptions need appropriate remedies. When chilblains occur they should be painted with tincture of iodine and if the skin should break and sores form, resin or zinc ointment should be applied. The faulty habits which are met with in some cases render it almost impossible to keep the skin in good condition: great care is then required on the part of the nurse and the integument should be hardened by the use of a dusting powder, composed of equal parts of starch and oxide of zinc or by some spirit lotion. As the circulation and digestion are generally weak and the vital power less, the treatment must never be of a depressing nature.

I do not see how grave lesions of the brain can be benefited by craniotomy. The cases which have come under my observation, in which the operation has been performed for microcephaly, have shown little or no improvement, and I agree with Dr. Bourdville's opinion that more good can be done by careful education and training than by removing portions of the cranium. Far otherwise is it, however, with the treatment that is now in use with cases of the cretinoid type. For there are now on record a large number of cases in which it has proved eminently successful. The treatment consists in the administration of portions of the thyroid gland of a sheep to take the place of the thyroid gland which is absent in the human subject. At first the gland was transplanted from the animal into the patient's body but this mode of treatment has now ceased. Subcutaneous injection of a glycerine extract of the gland was next tried but it was found that administration by the mouth was equally successful. Finally, an extract was given in the form of a powder and now tabloids

containing five grains of the powder are employed. A quarter, half or one of these may be given daily according to the age of the patient at the commencement of the treatment, and when a cure has been effected, half a tablet or one per week is sufficient to keep a satisfactory state of health. It should be clearly understood that the remedy must be administered as long as the patient lives in order to keep him in a healthy condition.

#### IMPROVEMENT OF THE PHYSICAL DEFECTS AND IMPERFECTIONS.

The muscles which are wasted must be nourished by calling their functions into activity and for this purpose properly applied exercises in which the faculties of imitation and attention should be made use of, are required. These exercises will also correct the want of co-ordinating power so often seen, as shown by the entire absence of the ordinary precision of muscular movements. Simple exercises of the head and limbs, or dumb-bell drill, accompanied by music, will be found useful for this purpose, as will the practice of throwing a bag of beans at the pupil who first puts up his hands to protect himself from it, and afterwards learns to catch it and throw it back. The power of co-ordination is also strengthened by the use of nail boards, in which the nails are taken out and put back again: by the employment of squares, triangles, circles, and oblongs made of wood, and fitted into corresponding depressions; by threading beads, building bricks, paper plaiting and many similar lessons. The legs are trained by making the child walk upon or between the steps of a ladder placed upon the ground and by the use of apparatus to be found in every gymnasium. If there are contractures or paralysis, due to

disease of the brain and spinal cord. the general and special nutrition of the affected limbs must be increased by the application of galvanism and massage. Automatic movements, due to the want of controlling power of the will, must be replaced by others upon certain definite plans. Habits are taught by repetition and are readily gained if an early commencement be made.

The muscular system being strengthened, the hands having less difficulty in performing any simple act, locomotion is improved, the eyes wander less restlessly and the listlessness and inertness to a great extent disappear. On the other hand, the restlessness of the excitable class must be soothed by appropriate remedies such as the use of music, the singing of simple tunes, an elementary form of drill, and by encouraging the child to make use of his various toys. The calls of nature should be specially attended to and the patient trained to make use of the chamber and evacuate the bowels at regular intervals.

#### EDUCATION AND TRAINING OF THE MORAL AND INTELLECTUAL FACULTIES.

The moral treatment should go on side by side with the physical and mental training.

This thought Dr. Beach very thoroughly expands, but as its application is best made in institution life we will not quote. In conclusion he notes that: In the first place the shape of the head and the aspect of the face can not be relied upon as the only means for prognosis.

The brightest looking children are often the most volatile and their attention is not easily gained; on the other hand those who are phlegmatic in temperament and dull-looking will frequently take an interest in

their work and make considerable progress.

Secondly, each case needs to be carefully studied and treated: some learn more by ear, others by sight and the education should be adapted to the requirements of each.

In every case regularity in giving the lessons and great patience on the part of the teacher is absolutely necessary; and she should ever keep in mind the fact that mere parrot knowledge is of no use in the instruction of these pupils.

Thirdly, the children should be removed from home and placed in a suitable institution in which they can be educated and trained. Home instruction, as a rule, is of little use: the poor have no appliances in their homes for it, and in the homes of the rich, unless the parents are specially devoted to their children and make other objects subservient to his education, his claims are lost sight of, and no attempt at improvement is made. His more intelligent brothers and sisters will not join in his games, and often subject him to so much teasing that his mental condition further deteriorates. If he be removed to an institution in which he is on the same mental plans as the others in it, the spirit of emulation is aroused, he can join in the amusements and games and his life becomes joyous and bright.

Lastly, the training both physical and intellectual should be commenced early, for the older the patient is when it begins, the less chance there is of ultimate improvement and recovery.

Many mothers have been misled by the idea that at the age of seven or fourteen there will be an abrupt change from mental enfeeblement to mental brightness. From the nature of the case we should *à priori* consider this result impossible and

experience teaches that at these ages sudden changes for the better do not occur.



### **Pertussis.**

Dr. Charles G. Kerley of New York has the following suggestions to make in the treatment of this most troublesome disease.

In considering the management of pertussis we are first to remember that the disease is self limited, that it cannot be cured, and that in common with the other infectious diseases all we can do is to make it as easy as possible for the patient to bear. We cannot shorten the attack, but we can lessen the number and severity of the paroxysms. This is to be accomplished by the use of drugs administered by the mouth. The rubbing of a few drops of Roache's Embrocation on the stomach, is of course valueless. The believers in the theory that the chief seat of trouble is in the nose have advocated and brought into use the insufflation of various kinds of powders, prominent among which are boracic acid, resorcin and ground coffee. This measure is of no service, as might be expected. The cresolene lamp has a quieting effect upon the mental state of the nervous mother, and I allow it for this reason only. In my hands it made no impression on the disease. During the Infant Asylum epidemic, a systematic use of drugs was carried out after the following manner:

The new cases of pertussis as they came down were divided into groups of twenty. They were all carefully watched. The nurses and mothers were instructed to keep a record of the number and severity of the paroxysms day and night. When the disease reached the height of the paroxysmal stage treatment

was begun. But one drug was given to each group of twenty, and it was not changed until we were able to judge of its effects. The number of coughing paroxysms of each child were accurately kept after the beginning of treatment, in order that we might know what impression the drug might make on the disease. In this manner antipyrin, the bromides, belladonna, alum, dilute nitric acid, fluid extract of horse chestnut leaves, and the cresolene lamp were brought into use.

The antipyrin, bromides and belladonna were each used in several groups of twenty as we had an abundance of material. The ages of the cases treated varied from six weeks to five years. They were of every condition of bodily strength and weakness. To the best of our judgment; the duration of an attack was not shortened in a single instance. The average time in the quarantine was ten weeks; the range was from four weeks to four months. The cases of short duration, from four to six weeks, were as severe or more severe than those which coughed for months. These cases ceased coughing not on account of the treatment but because the disease had run its course.

Antipyrin gave us the best results. Under its use the number and severity of the paroxysms subsided. A combination of the bromides of soda, potash, and ammonia came next. The much vaunted belladonna appeared to exert little or no influence. It was given to the point of physiological effect. Alum gave practically negative results. Dilute nitric acid and fluid extract of horse chestnut leaves were utter failures.

The results in a few cases in which antipyrin was used were notably good. The number of paroxysms diminished one-half in some, one-



third in others. It was interesting to note, also, the difference in the manner of improvement. In some the number of paroxysms would be lessened while in others the number remained unchanged with marked amelioration in the severity. During this epidemic and the four years that have intervened I have given antipyrin freely in this affection, and have had no accidents or unpleasant results: never a sign of depression. A slight rash resulted but once. A combination of antipyrin and the bromides gave us better results than when administered singly. The combination of the two drugs, antipyrin and bromide of soda, was accordingly adopted as our method of treatment.

For a child of eight months, 1-2 gr. of antipyrin with 2 grs. of the bromide of soda may be given every two hours. For a child of fifteen months 1 gr. of antipyrin with 2 1-2 grs. of bromide of soda every two hours. For a child from two and a half years to four years, 2 grs. of antipyrin with 2 to 3 grs. of bromide of soda every two hours.

During the past three years I have used both bromoform and quinine in a large number of cases. These cases were either private or dispensary patients in whom absolutely accurate observations were not to be made. Judging from the results obtained, however, bromoform which was a fashionable pertussis specific at that time proved to be of little service. In the first three cases in which it was used it appeared to exert a most decided influence in shortening the course of the disease. Upon further use, however, it went to the wall, and there it occupies a space today among many other so-called pertussis specifics. Not so with quinine. In this we have a very useful remedy but I have been obliged, unfortunately, to limit the use of it to

children over two years of age. Give ten to sixteen grains daily to a child from three to five years of age. The paroxysms, both the frequency and severity, will be favorably influenced. In some the results are astonishing, so great is the relief to the patient. The administration to children under two or perhaps two and a half years of age has not been a success in my hands.

The parents if they know what is being given, object to such large doses of quinine to so small a patient and not without reason. The first objection then is that the whooping-cough medicine is not given as directed. The parents take it upon themselves to skip a dose occasionally. The second objection is that it is almost impossible to make the drug palatable and the child resists vigorously the frequent dosage. A third objection I have found in the vomiting that may follow when it is given properly. The fourth objection is that if the full dose is given and is all retained, as it must be in order to make an impression upon the disease, we are very liable to get symptoms of the physiological effects of the drug. The child will not hear well, will sleep poorly and evidence discomfort by placing its fingers in its ears. If the administration is continued further, an ataxic gait may develop. In short, I believe the remedy to be worse than the disease and only use it during the active stage in older children. A convenient and fairly pleasant way of giving the quinine is combined with chocolate in the form of a tablet, one grain of the sulphate to each tablet.

A most important point in the management of whooping-cough is to use the remedy selected at the proper time, and this time is when the paroxysmal stage is at its height. *New York Polyclinic*, Aug. 15, 1896.



## THERAPEUTIC NOTES.

*Malaria.*

Dr. Ferrier has used *Methyl-blue* with satisfactory results in some cases of malaria in children where quinine had failed. From 0.5 to 9.5 grammes (7 1-2 to 142 1-2 grains) were given daily. The dose depended more upon the severity of the disease than the age of the patient. In order to prevent a relapse, the drug should be continued several days after signs of the disease have disappeared.

A convenient vehicle for its administration is syrup of orange or cinnamon.

Unpleasant effects were never noted. Neither the stomach, bladder nor kidneys were disturbed in any way.—*The International Medical Annual*, 1893. Page 421.

*Prescriptions.*

[From "Diseases of Children," by Hatfield, 1886.]

R	Sodii bromid.,	4.
	Syr. rhei aromat.,	
	Tinct. opii camph., aa	8.
	Aque anisi, ad	60.

M. Sig. One teaspoonful every two to four hours for serous diarrhoea.

R	Lactic acid,	2.
	Simple syrup,	98.
	Lemon juice,	q. s.

M. Sig. One teaspoonful every three hours to check greenish dejections.

R	Sp. am. aromatici,	4.
	Magnesii exsiccate,	2.
	Aque anisi,	50.
	Tr. opii camph.,	4.

M. Sig. One teaspoonful every thirty minutes for diarrhoea of cholera infantum.

*Preparation of Diluents and Foods.*

The following from Starr's recent book on "Diets for Infants and Children," may be of service.

*Barley-water.*—Put two teaspoonfuls of washed pearl barley in a saucepan with a pint of water; boil slowly down to two-thirds of a pint; strain.

*Oat-meal or Cracked-wheat Water.*—Add from one to three tablespoonfuls of well-cooked oat-meal or cracked-wheat porridge to a pint of water; heat almost to boiling-point, with constant stirring until a smooth mixture is obtained; strain.

*Flour-ball.*—Take one pound of good wheat flour (unbolted is best), tie it up very tightly in a strong pudding-bag, place in a saucepan of water, and boil constantly for ten hours; when cold, remove cloth, cut away soft outer covering of dough, and, as required, reduce hard, baked interior to powder by grating. When using rub the required quantity of powder, with a tablespoonful of milk, into a smooth paste; add a second tablespoonful of milk, rubbing until a creamy mixture is obtained; finally add this, with stirring, to total quantity of liquid for the meal.

*Whey.*—Heat one pint of milk to a point that can be agreeably borne by the mouth; add, with gentle stirring, two teaspoonfuls (two fluid drachms) of Fairchild's essence of pepsin; let stand until firm coagulation takes place; beat with a fork until the curd is finely divided; strain.

## Editorial



THE questions of the amount of medicine which may be wisely given to a child and the method by which it may be best given have been often discussed and variously decided. As physicians we frequently see the baneful effect of the indiscriminate administration of so-called soothing syrups, laxatives and what not. Sharp criticism of such action, perhaps leads the medical man at times too far in the other direction. Undoubtedly it is much better for the child if it can be in such a physical condition that no medicine is required. Fortunate, indeed, is the child, and even more the mother of it, who needs no hypnotic or quietant other than hot water, and whose dejections are regular and free, as a result of the addition of a little gruel to its food or as the use of an occasional soap suppository. And thanks chiefly to the self-sacrificing advice and careful instructions of physicians, such children are becoming more and more frequent. But occasionally a child is met with, of course either previously neglected or transferred from another physician's care, which baffles us. Do what we will by our hygienic or dietary methods, he will not sleep, or he will cry, or vomit or purge. Shall we then adopt the plan of our "scientist" or homœopathic friends who do nothing or do something which practically amounts to nothing? Perhaps that may at times be wise. There certainly has been a widely prevalent popular idea that we give too much medicine to children. Hence when the child is ill, the homœopath is called in who administers only some little sugar-coated pilules or a teaspoonful of a mixture containing only a minute part of a drop of medicine. And it is a fact too that most of the children so treated do get well. There can be no question but that these facts have had a large influence upon present ideas of the therapy of childhood and to a scarcely less degree of general therapeutics. None the less the physician should remember that there are times when prompt and vigorous medication is demanded. What these crises are, and what medicines he shall use, each educated physician will prefer to decide for himself and he places little reliance on the instructions of books or in posological tables.

The ideas in regard to the method of administration have likewise undergone very considerable changes. The time has gone by when parents will employ the physician who prescribes nauseous draughts which will only be swallowed per force. To be sure if the child is apparently very sick, the parents will object to nothing which promises a restoration to health. But in general the little pellets are very popular with the laity. The widespread adoption of the tablet-turate method of medication is a concession to this demand as well as a great convenience to the physician. But we need to remember that not all drugs may be wisely so given. C. S. N. Hallburg, Ph. G., in an excellent paper read before the Annual Meeting of the American Pharmaceutical Association at Montreal, last August, calls special attention to this. He states that some compounds dispensed in such tablet or pill form are entirely insoluble, as for instance the

common one of bismuth subnitrate and calomel which combine with mucilage or glycerite of starch and form in a little time a substance as hard as cement. Emetics, diaphoretics, sedatives, narcotics, tonics and antipyretics should be given in some other form. The physician should moreover make sure by actual testing in water, of the ready solubility of the pills and tablets he uses, and this with every fresh supply. For many which at first are soluble and efficient become with age of no value.

With considerable patience and persistence at times, children may be usually more easily taught to take unpleasant medicines than can adults. Once accustomed they soon become attached to what at first was violently refused. Cod liver oil is a well known case in point. Cachets and capsules because of their size will be usually found objectionable. We must rely as of old in general upon solutions whose bitter or otherwise disturbing taste or odor, may, however, be oftentimes completely disguised. Every well trained pharmacist or physician will have many ready expedients.

There are cases where everything is refused. This may be due to temper, to obstruction of the throat, to emesis, to diarrhœa or various other causes and each must be met in its own way. Of course we are speaking now only of cases where, because of the condition of the child, the medicine *must* be taken. Tonsillar obstruction may be met by the passage of a catheter through the nares and the introduction through it of food and medicine. When skilfully done the results are often better than those of rectal medication. This last is of course indicated for cases of persistent vomiting. Hypodermic treatment is of great value *in extremis* and will not infrequently tide a little one by a crisis and start him on the way to recovery. More rarely we may make use of the absorptive powers of lungs or skin. Examples are found in calomel fumes for croup, mercury inunctions for syphilis or an inunction of a 5 per cent. solution of pilocarpin in vaselin for diaphoresis.

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# ANNALS OF GYNÆCOLOGY AND PÆDIATRY.

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## ORIGINAL COMMUNICATIONS.



### THE TREATMENT OF ECLAMPSIA.\*

BY DR. CHARPENTIER, OF PARIS.

GENTLEMEN:—When you asked me to make a report on the treatment of eclampsia, my first thought was to endeavor to withdraw from it. The therapeutical tendencies of today are in opposition with my personal ideas, and I find myself in opposition with a great many of my foreign colleagues.

After having raised this question a certain number of times before the Academy of Medicine as well as in some of our obstetrical societies, I have acquired the certitude that at least in France, with the exception of a few very slight differences, all obstetricians are of the same opinion regarding this point. I have consequently accepted mak-

ing this report to the Congress; and I must in the first place thank you for the honor that you have conferred upon me.

Thirty years of obstetrical practice have permitted me to form a serious conviction and authorize me to make the conclusions that I shall formulate at the end of this memoir.

I will expose in as brief a manner as possible the reasons that can be given in favor of my opinion, and will defend them with all my strength, and I hope that I will be able to convince you of their value.

I will now combat a few of the treatments and methods that in various foreign countries are being put forth, but no matter how

—\*Report read before the International Congress of Gynecologists and Obstetricians, held at Geneva, Switzerland, in September, 1896.



sharp may be my attacks I shall remain on an exclusively scientific ground and shall strictly observe the rules of this courtesy that has been rightly called French courtesy.

Eclampsia is one of the most terrible accidents during pregnancy or labor, and on this point every one is in accord. It causes a considerable mortality for the mothers and children, and it is a constant pre-occupation for all obstetricians. For this reason we have a large number of therapeutical measures, a multiplicity which in itself alone proves their inefficiency and their only slight real efficacy.

The pathogenesis of eclampsia is far from being settled in a definitive manner and as long as this point is not absolutely elucidated, it will be impossible for us to adopt a treatment which will give us decisive results.

In fact, eclampsia does not constitute a real pathological entity. The attacks which are characteristic of it are only manifestations of very different morbid conditions; from simple indigestion, a case of which I have seen with my colleague, Gueniot, up to liver, cerebral, and renal lesions of the most distinct and typical examples.

If among these processes the kidney lesions, compression of the ureters, albuminuria especially, occupies the first rank, and we must not forget the facts relatively numerous in which eclampsia manifests itself with its most serious consequences without the

urine of the patient ever showing the slightest trace of albumen, no more than we should reject the still more numerous cases, in which the renal lesions were too insignificant to have alone been the determining cause of the death of the patients.

We should not forget, either, that eclampsia is a disease in which we are always having surprises. What one of us has not seen apparently slight cases end by death, and on the contrary, patients who, by the number of the attacks and the apparent gravity of these which appeared to be in all probability fatal, get well?

To endeavor at the present time to establish the rules of a definitive treatment of eclampsia is to endeavor to find the solution of a problem impossible of solving. But what we can do and what we should do is to record facts, to compare these facts one with another, to examine the results given by such and such a method of treatment, and to hold ourselves strictly to the conclusions which we can draw from them, keeping always a reserved, as well as prudent opinion, until the day, unfortunately far off, perhaps, when we can all be in accord regarding the treatment of eclampsia.

Let us confine ourselves, consequently, for the time being, to the results obtained in contemporary science.

One word, however, before I enter definitively into my subject. Of all the theories emitted regarding eclampsia, and the one which

appears to have the largest number of adherents, is the theory which considers eclampsia due to a poisoning of the blood, an intoxication, a toxemia, and you all know how Bouchard has demonstrated to us this intimate process.

The urine of healthy individuals is toxic to the highest degree. On the other hand, the urine of certain patients is not. Now, nothing in physiology authorizes us to consider the different poisons contained in the urine (Bouchard has isolated seven varieties) as products eliminated directly in the kidney. These poisons are necessarily found in the blood. But the toxic products can only be found in the blood when the organism is suffering from their presence therein. Consequently they are eliminated little by little as fast as they are formed in the blood, and it is by the kidney and the urine that this elimination takes place. If the blood is not normally toxic, if we are *in a condition of health*, the normal urine should, consequently, be toxic and receives its toxicity incessantly from the blood.

From this we can admit that the kidney plays a capital part in our economy. If the kidney is in good condition and its functions are regular, the elimination of the toxins of the blood will also take place in a regular and incessant manner, and from this equilibrium will result *a normal condition—a condition of health*.

If this equilibrium should become

modified, the organism will enter into a condition of suffering, and the disease will occur.

But in this diseased individual two conditions must be present. First, there may be an excess in the production of toxic matter. Secondly, there may be insufficient elimination through the kidney.

Now, in a case of albuminuria the urine is very much less toxic than in the normal condition and in eclampsic patients this toxicity of the urine does not hardly exist. Consequently, in the latter patients, both the conditions above mentioned are met with, with their maximum of intensity. In these patients, in fact, there is on the one hand a diminution of urinary secretion which may go as far as anuria and the absence of toxicity of the urine on account of which there is an arrest in the elimination of the toxins: on the other hand, on account of this arrest of the elimination, there is an accumulation of the non-eliminated toxins in the blood, an appearance of accidents, so-called uremic, which always coincide with the disappearance of the toxicity of the urine.

This accumulation of toxins in the blood of patients with albuminuria, and especially the eclampsics, is today a well known fact. Brought forward in 1886 at the Biological Society of Paris by Doleris, it has been confirmed by the experiments of Tarnier and Chambrelent, who not only proved that the toxicity of the blood serum is very

considerable in puerperal eclampsia, but still more, that this toxicity of the serum is in direct relation to the coefficient of urotoxy.

It remains for us to examine:—

(1) From whence come the substances which poison the blood, and, later on, the organism?

(2) If this eclamptic toxæmia is due to an excess in the production or to a fault in the elimination. Now Bouchard has demonstrated that the toxins of the blood are produced in the organism itself and that they come from four different sources: first, from the proper life of the tissues which at every instant put at liberty toxic products coming from cellular life and which form the waste matter; secondly, from our secretory organs which produce toxic material that is absorbed by the blood: thirdly and fourthly, from the intestine in which two sorts of toxic agents are to be found, the first like potash having been carried there, all formed, with the blood, the others taking birth on the spot and being the result of intestinal putrefaction.

In a normal condition the elimination takes place in a regular manner, but in a pregnant woman the modifications in the organism are extremely profound, and are particularly marked in the organs which have as functions the destruction or the elimination of these toxins. Such is the liver whose alterations have been particularly pointed out by Tarnier: the kidney, whose lesions may vary from a

simple congestion up to a most marked nephritis—all this ending in *renal insufficiency* and its consequences. Now, this renal insufficiency,—in what patients do we particularly find it? In pregnant women with albuminuria. And it is this renal insufficiency which causes the accumulation of toxins in the blood.

Add to this renal insufficiency the influence of the nervous system, an influence so well demonstrated by Gueniot with the aid of incontestible facts, and it is not necessary to hunt further for the cause of the breaking out of eclamptic attacks. As you see, I am not enthusiastic with the microbe theory of eclampsia, which, in spite of all the remarkable writings, still remains to be demonstrated, and I fully adopt the theory of toxæmia.

Now, given this theory, what are the indications to be fulfilled by a medical treatment? They may be reduced to two: first, to prevent the production of the toxins; and secondly, to favor their elimination.

#### PREVENTIVE TREATMENT.—I. THE PRODUCTION OF TOXINES.

Is this possibly accomplished in an absolute manner? No. But we can, nevertheless, diminish the quantity of toxins that are held in the blood. We can try to increase the mass of blood, in such a way as to lower the properties of the toxicity and by this means we may prevent the convulsive attacks.

Eclampsia is not a disease with an

overwhelming debut. It is a consequence of a toxemia with a slow and continued progress, so to speak: it is always preceded by phenomena or prodromes which should make the physician fear it, and these will never escape the notice of an attentive obstetrician. Among these prodromes, some may appear a long time before the appearance of the eclamptic attacks. These are, first of all, the albuminuria, then the œdema, which in the first place is localized to the lower extremities, becomes generalized, little by little reaching the face, and which may manifest itself either at the same time or as a consequence of albuminuria, or, unfortunately, from the presence of albumen in the urine. Less alarming in the second case than in the first, they should, nevertheless, be combated vigorously.

The others are the true prodromes, cephalagia, pain in the epigastrium, vomiting, troubles of the sight, considerable decrease in the quantity of urine, etc. They are all the more serious when they precede by only a short time the attacks of eclampsia. Now, we have against these two orders of prodromes a marvelous therapeutic agent, and that is milk. Milk is, as we know, on the one hand a food which contains the least toxic substance, or which can become toxic by stomachal or intestinal digestions, and on the other hand, it is a powerful diuretic which favors the elimination of the toxines the more it increases the activity of the urinary secretion.

And lastly, milk by being introduced in the circulatory system a larger quantity of liquid dilutes the same quantity of poison in a larger mass of liquid. The quantity of poison remains the same, but the amount of intoxication is diminished (Bernheim).

By milk itself, in accordance with all my colleagues, I affirm that we are able to prevent the eclamptic manifestations, and that if we fail, it is because this diet has been badly or insufficiently applied. The whole question is there.

Milk diet should be absolute. Milk and nothing but milk, hot or cold, boiled or not, sigared or not, diluted if you wish or if the patients bear it with difficulty, with a little Vals or Vichy water: but milk, nothing but milk at the minimum dose of three litres a day, and much more if necessary, or carried as high as four or five litres in 24 hours.

The only inconvenience of milk diet is the production of severe constipation in certain patients, and it is sufficient to watch women in this point of view and combat this constipation by daily laxatives, and if necessary, purgatives, all the more energetic in relation if this constipation is very obstinate.

Some of our colleagues think that when the imminent prodromic symptoms of eclampsia occur, with or without albuminuria, in a pregnant woman, the toxemia is then so well established that eclampsia will almost surely occur and that it is too late to get any benefit from milk diet. This



is an error which we cannot too vigorously combat. Tarnier and his co-workers, Gueniot, myself, have all seen these imminent prodromes of eclampsia disappear, thanks to a milk diet, although the time at which it was instituted was so late that a failure did seem probable.

There is a point on which I cannot insist too strongly; *It is never too late to submit patients to a milk diet*, and this action of the milk is so excellent and efficacious that in a certain number of women in full evolution of eclampsic attacks, Tarnier, Maygrier, Bar, Porak, and others, have seen the attacks give way to an injection made directly into the stomach, of a large quantity of milk.

My conclusion is consequently formal; that we possess in milk diet a sure and certain means of preventing the production of attacks of eclampsia, and this means acts in a manner all the more absolute the more it is employed in high doses and the more heartily it is put into play. We are masters of the situation, on one condition however, and that is, that no matter at what time the treatment has been commenced, whether the woman is far from or near the end of her pregnancy, the milk diet should be applied *in an exclusive and continuous manner*, not only up to the commencement of labor, but during the eight or ten days following delivery. A diminution of the albuminuria is not a sufficient reason for us to stop the milk diet or even to diminish it in quan-

tity; *it is necessary that there should be a complete and permanent disappearance of albumen in the urine before we should allow ourselves to stop the exhibition of an absolute milk diet.*

By fixing the tenth day of the puerperium as the term of the regimen, we only give an approximate figure, because, if in the great majority of cases the albuminuria disappears in the first week following labor, it is not always so, and consequently we should continue the milk diet. Albuminuria in pregnant women is not always and exclusively an albuminuria of pregnancy and it may be produced by a pre-existing renal lesion; for this reason the indications vary according to the case.

Actually in France, in all the Maternities, pregnant women are admitted several weeks and even several months before term. Their urine is examined every two or three days and at the slightest trace of albumen they are subjected to a rigorous milk diet. Consequently, it may be said that eclampsia has completely disappeared among these women, and the cases of this disease observed in the various services are all cases which are brought in from outside, and which explains in many cases, their gravity.

As a complement to the milk diet we may employ *inhalations of oxygen* (Jaccoud) *which favors the organic composition of intestinal antisepsis* (Bouchard) which by suppressing or by diminishing the intestinal decomposition at least, also opposes

the production of toxines.

#### MEDICAL TREATMENT.

This is intended to fulfil the second indication that I have already mentioned: *to favor the elimination of the toxines.*

In order to fulfil this indication and at the same time in order to increase the quantity of blood, Porak and his disciple, Bernheim, have employed *injections of salt water* in the cellular tissue, preferably in the region of the buttock.

The composition of this liquid is very simple. All you have to do is to dissolve seven grams of chloride of calcium in a litre of filtered, boiled, and sterile water, and inject it at the temperature of 37° or 38° centigrade. The quantity of liquid to be injected should be at least from 400 to 500 grams for the first injection, and it may be carried as high as 1500 grams in 24 hours. These injections may be continued without danger for several days.

Without going as far as to conclude with Bernheim that these injections have a sure curative action, I am happy to notice that this method has rendered a great service. It lowers the quantity of toxemia by re-establishing or by increasing the urinary secretion, and it favors the elimination of the toxines, and the cases reported by Porak and Bernheim prove in an indisputable manner the benefit that cases of eclampsia may receive from them.

#### BLOOD LETTING.

This was for a long time considered as the most efficacious treatment of

eclampsia. Sometimes employed in the form of local emissions (leeches or cupping): at others, in the form of a general bleeding; in the first place at moderate doses and then at large and repeated doses as practiced by Depaul. Blood letting has been nearly left aside by every one since the application of the anæsthetic method and Peter remained the only one who defended it with a firm conviction of its usefulness. Within the last few years it has come again into favor in France and in other countries, and it is certain that when associated with the anæsthetic method, it renders notable service in a large number of cases.

In very strong and vigorous women in whom congestive phenomena are very pronounced, either in the lungs or in the brain, a moderate bleeding will only ameliorate the condition of these patients: but I do not think that we should withdraw more than 200 or 300 grams of blood at a time and I should fear that by going over this quantity we would impoverish the blood already so poor in eclampsic patients and thus produce in them a condition of anæmia, the intensity and persistence of which would be attended with danger.

There is one fact which remains indisputable, and that is, blood letting, if it does not completely suppress the attacks, always brings about a diminution in the number and the intensity at the same time that it causes them to occur farther and farther apart.

Without counting the cases men-

tioned by other writers, I have already mentioned ten conclusive observations in my thesis of aggregation in 1872, and the facts that I have observed since this date have only confirmed those already assigned in this work.

By removing a certain quantity of blood from the eclampsic patient, we remove at the same time a certain dose of toxic substance, and consequently there is at least a temporary amelioration in the manifestations of the disease.

But, say the adversaries of blood letting, Bouchard has demonstrated that by removing from a uremic 32 grams of blood, you only take away 50 centigrams of extractive matter, while the daily diminution by the urine is eight grams.

On the other hand, physiology shows us that all secretion is directly proportional to the blood pressure and is inversely proportional to the rapidity of the circulation. It slows, consequently, the urinary secretion and that which is gained on the one hand by the blood letting, is lost on the other by the diminution of the urine. It has been forgotten when making this objection to blood letting, that this daily elimination of 8 grams of extractive matter is what occurs in normal urine and that urine of eclampsic patients beside being very small in quantity, is only slightly or not at all toxic.

For this reason we have the advice given by Porak to associate with the injections of salt water blood letting. It is the same end that is

to be attained when *purgatives* are employed, because they act as a kind of "white" blood letting and remove the toxins of intestinal origin from the organism.

It is diaphoresis that we endeavor to produce by *hot baths* or *vapor baths*, both of which appear to me of very difficult application in pregnant women having eclampsic convulsions; pilocarpine which is still much vaunted is of little merit according to my way of thinking.

This diaphoresis, in fact, no matter how profuse it may be, will have an eliminative action of only little value, because where blood letting of 32 grams will bring 50 centigrams of extractive matter, it is necessary in order to obtain the same results, to produce 280 grams of liquid in the form of diarrhœ obtained by drastics and 100 litres of perspiration.

Along with pilocarpine, we should also mention *veratrum viride* which at the present time is a medicine much vaunted by American obstetricians.

For Jewitt, Percy, Reamy, and others, the value of veratrum in eclampsia appears to depend upon its action on the vaso-motor system. It notably slows the heart beats and may make them as low as 50, 40, and even 26 to the minute. When introduced into the economy, it paralyzes the vaso-motor nerves and thus the blood vessels lose their contractive power. Consequently, we have a diminution of the vaso-motor spasm of the cerebral vessels and consecutive cerebral anæmia from which influences

the convulsions appear to be due. Veratrum is also a depressant of the cord, although probably, as Peugnat believes, this effect is secondary in its action on the sympathetic, by means of the vaso-motor nerves (Jewitt).

But veratrum is far from being an inoffensive drug. When used in massive doses, it produces symptoms of collapsus. The pulse becomes very weak and hardly perceptible. There is vomiting, cold sweats, lowering of the temperature which may reach  $35^{\circ}$  centegrade and even lower; coldness of the extremities, vertigo, partial loss of sight, dilatation of the pupils, extreme muscular weakness, slow and superficial respiration, sometimes somnolence, coma, and insensibility, with stertorous respiration. Consequently we are under the necessity of employing it in small doses (10 minims, which is equal to 60 centigrams) in subcutaneous injections and in application doses.

According to Jewitt, a hyperdermic injection of veratrum requires about 30 minutes to arrive at the maximum of its effect. If this result is not arrived at within this time, the same dose should be repeated, or a smaller dose, according to circumstances. In order to maintain the result the drug is continued at the dose of five minims at distant intervals.

To sum up, veratrum acts rapidly, it lowers the arterial tension, slows the pulse, produces an abundant diaphoresis and increases the urinary secretion.

I do not know that it is being used in France at the present time and

what may be learned by reading reported cases is that nearly always it has been associated with other medicines, blood letting and anæsthetics. Much still remains for me to speak of before I touch upon the obstetrical treatment.

#### ANÆSTHETIC METHOD.

By the anæsthetic method it is no longer the aim to prevent the production of the toxines or to favor their elimination, but it is to directly combat their convulsive effects by acting on the nervous system.

Three anæsthetics marvelously fulfil this indication. These are ether, chloroform, and chloral. Ether is today nearly completely dethroned by chloroform, and consequently I will only speak of the latter and chloral.

#### CHLOROFORM ADMINISTERED AT THE TIME OF THE ATTACK.

This agent produces first a slight period of excitement, then a period of languor, a weakness of the peripheral sensibility occurs and this propagates itself from the circumference of the body to the center, and ends in complete insensibility; the sensorial, sensitive and locomotive faculties are last of all abolished. The attack, consequently, ceases and the patient falls into a complete repose. In order to obtain the good effects of chloroform, we should not simply administer it during the attacks, but it should be continued during the interval, and even if not at a high dose, at least in a sufficient dose to keep the patient in a semi-anæsthesia, the physician being ready to complete



this anæsthesia by an increase of the dose just as soon as the symptoms announce the reappearance of the attack.

Now, eclampsia is not a disease which instantaneously disappears, but generally persists during ten or twelve hours, sometimes longer, and consequently during all this time it is necessary to keep the patient under the influence of chloroform, and the danger which may result from doses of chloroform which may reach as high as 500 grams or more, are easily understood. Let us add that so long an administration of chloroform, which is a possible thing in a hospital, is a very difficult matter in private practice, and from this results the custom of only giving chloroform during the attack.

In this case the effects are incontestible. Under the influence of chloroform calm is rapidly produced. The attack ceases at the end of a few seconds and it is for this reason that in nearly all reported cases we find chloroform associated with all the other therapeutical means.

According to the Germans, chloroform when applied for a long time in eclamptic women is particularly dangerous.

1. Because the lesions that are most usually found in the cadavera of eclamptic women are: cardiac lesions, an indistinct change, a fatty degeneration of the cardiac muscles; consequently, lesions which taken alone without eclampsia are contraindications for the use of chloroform.

2. Because it results from the

experiments of Notlmagel, Ungar, Strassmann, Ostertag, etc., that fatty degeneration of the heart may be caused directly by chloroform; because Fehling has demonstrated by a long series of clinical researches that chloroform alone may produce albuminuria with renal casts in the urine and that consequently, its use in eclampsia is directly in opposition with the end that we try to attain.

3. Because chloroform dissolves the red blood corpuscles (experiments of Bottcher, Leyden, Nothnagel), and still more, Bernstein and Fischer have reported the presence of grave icter in cases in which the administration of chloroform was prolonged; and lastly, Mikulicz has found a diminution of hemoglobin after a long-continued narcosis with this agent.

Consequently, Dührssen who has completely adopted these ideas has mentioned among his cases 33 who died and in which he attributes the most manifest action on the respiration and circulation from the prolonged narcosis. To these 33 cases we may add three others, one of which died, and two of which recovered, in which there were symptoms of œdema and pulmonary congestion.

But precisely in all these cases the narcosis was never in reality but moderate. It had never lasted more than five or six hours, and in only two cases more than 110 and 200 grams of chloroform were administered.

Now, what was found at the autopsy in all these cases? In a large

number of them, lesions of the heart, it is true, but these lesions were all of more or less long-standing and impossible to be attributed to the anæsthetic alone; then, lesions of the kidneys, liver, spleen, brain, lungs, that is to say, lesions that are met with at the autopsy of all eclamptic patients, no matter what method of treatment has been employed, nothing, in a word, that is special or particular, which will allow us to directly incriminate the anæsthetic.

And still more, take the cases of Dührssen, Goldberg, Wildholz, Lantos, and Gettkeok, thus simply taking the cases reported in Germany, and we will be quickly convinced that it is exactly in cases in which narcotics had been employed at the highest possible dose, and in the most continuous manner, that the patients have recovered.

Do not let us forget that Lucas Championniere, has demonstrated that we can keep patients with heart affections under the influence of chloroform for several hours and that we should not deprive them of the service that chloroform can render, simply on account of an exaggerated and unjustifiable fear, especially when the drug is handled prudently.

Consequently, I believe that we should accept the following propositions emitted by Ostertag with the greatest reserve and I also consider them as by far too absolute.

1. After prolonged inhalations of chloroform, the lesions found in animals are identical to those found in eclampsia. These lesions consist of

fatty degeneration of the viscera, bloody infiltration of the liver, heart, muscles, kidneys, and stomach.

2. This fatty metamorphosis is due to the action of chloroform on the blood (destruction of red globules and connective cells).

3. The fatal action of chloroform is produced by a paralysis of the heart with anatomical lesions of the myocardium and large quantities of carbonic acid in the blood.

4. Prolonged narcosis predisposes to broncho-pneumonia.

I will go no farther and admitting even that these observations of Ostertag are rigorously true, they only apply to a prolonged narcosis, and the dangers which this author points out no longer exists when chloroform is administered at the time of the attacks, in a word, when narcosis is intermittent. And still more, these objections are *nil* regarding this other anæsthetic so precious for eclampsia, *chloral*.

#### CHLORAL.

This is both a hypnotic and an anæsthetic which, after having produced an incoordination of movements, produces a muscular paresis, and finally results in a more or less complete resolution according to the amount of the dose administered.

Although its action is incontestibly less efficacious than chloroform on the attack itself, it is none the less a precious agent in eclamptic attacks. In order to maintain a resolution during the interval of the attacks it is sufficient to recommend the administration of chloral and a capital point,

even employed in large doses and for a long time, 24 to 48 hours if necessary, the medicine is without danger for the patient.

Consequently administer chloroform during the attacks. Keep the patients absolutely under the influence of chloral during the entire eclamptic seizure, no matter how long may be its duration. Such is the method that I advise, and, which I repeat, has the great advantage of being without danger for the patients.

Here, again, you see I am in opposition to the German school which addresses the same reproaches to chloral as it does to chloroform; but I feel perfectly sure of my point because the proofs of my assurance abound in all practices.

Yes, chloral acts both on the blood and on the circulation. It exhilarates the latter in the first place and then slows it. At an excessive dose it may produce an irregularity and a weakness in the respiration, lower the temperature, etc.

But its good effects overcome the dangerous ones and it may be employed in large doses without any manifestations of danger.

Recall to your minds the experiments of Ore who employs the intravenous injections of chloral in tetanus, and has injected nine grams daily for three days in one of his patients who recovered.

Recall to your minds the numerous cases of tetanus treated by chloral at high doses and who have recovered, and sum up all these proofs in one. I would recall the case of tetanus

treated by our colleague, Prof. Berger, who took in 32 days 415 grams of chloral.

Now, in this patient the smallest daily dose was eight grams, while the largest was 24, and as to accidents, he only experienced some gastric trouble, and he recovered, thanks to these enormous doses of chloral, and this occurred after he had also undergone amputation of the little finger along with the five metacarpal bones.

Is it necessary for me to mention the experiments of our colleague, Laborde, who has tried the effects of the administration of chloral by the stomach, by the rectum and by intravenous injection. All this will occupy too much time, and I will simply give you his conclusions.

"At any rate and no matter what has been the dose of chloral we have never observed after its experimental administration either the presence of an embolus in the vessels or any signs of this kind of accident (chloral does not necessarily produce coagulation of the blood by its immediate contact with this liquid as does chloroform) or consecutive visceral changes of any kind such as fatty degeneration. Chloroform when introduced in a vein hardly even produces a slight irritation of its lining membrane, an irritation which has been especially noted by veterinary surgeons following injections of massive doses in the horse."

But it is the same with chloral as with the milk diet. In order to receive any benefit from it, it is necessary that it should be administered

in a certain way and in sufficiently large doses. Now, it is just on this point where the German school is wrong, because, influenced by its theoretical ideals, it begins by two grams and does not go above six grams in several doses. Bourdon has, in fact, demonstrated a long time ago that in order to obtain serious results we should have recourse to much higher doses. This writer begins by giving four grams and then gives from one to two grams every quarter of an hour until 10 grams are reached. When he has arrived at this dose, if the attacks have not stopped, he waits for a few hours and then again administers the drug.

Chouppe goes as far as 12 grams. Testut first gives four grams and then one gram every hour until his solution, which is composed of 10 grams of chloral and 200 grams of distilled water, has been used up. He gives it by rectal injections.

Like these colleagues I give it by the rectum and I proceed in a manner which is very similar to that indicated by Bourdon.

I order at once a rectal injection of 4 grams of chloral in 60 grams of quince mucilage. If this first injection is not retained, a second is given and if necessary, a third one until the drug is tolerated.

Whether the attacks continue or stop I cease momentarily all treatment for five or six hours and then I again administer a rectal injection of 4 grams of chloral. Again, a new interruption of five or six hours and then again an injection of four grams

of chloral.

I have rarely had occasion to go above these doses which represent 12 grams to be taken in 18 to 24 hours. But I would not be afraid of larger doses and in one case I was obliged to arrive at 16 grams. Berger's case proves that we can go very much farther.

If the attacks are less frequent after the first dose, I give the medicine less frequently. If, on the contrary, the attacks persist with the same intensity I give the doses a little nearer together. In one case which recovered I administered 12 grams in 10 hours.

But what appears to me very important is that I never stop giving the medicine suddenly, and even when the patient is on the road to recovery I still give her four grams of chloral by the rectum at the end of the first 24 hours which follow the beginning of the attack. It is only at the end of this time that I stop giving it through the rectum, and I keep the patient under the influence of chloral for 24 hours longer by giving a dessertspoonful of a potion composed of three grams of chloral for 125 grams of gum syrup every two or three hours.

By proceeding in this way by massive doses and relatively quite separate one from the others, I obtain a more rapid and more complete repose and the patients are in this way less tormented.

Delaunay and Froger who administer it as I do have gone as far as giving 20 grams. I have



never had need of giving so considerable a dose. I am also careful to have the patient take as much milk as possible during all the time that chloral is given.

*Morphine.* This drug has been especially advocated by German writers. No matter what success has been put forward in its favor, it has never convinced us, because it is very rarely administered alone, being usually associated with another treatment such as blood letting or the administration of chloroform, chloral, etc., and we believe more in the action of the two latter agents than in that of morphine, because morphine may produce a cessation of the symptoms and momentary calm which we are most disposed to admit, but for this reason to believe in a definitive curative action we cannot do so, and in the point of view of this calm we believe that chloral is in-

definitely superior to morphine.

Let me add that in order to obtain this calm, morphine must be administered in high doses and in a prolonged manner, and to give morphine in this fashion is far from being without danger, because even the German authors themselves admit that it may produce paralysis of the heart.

Now, gentlemen, is it necessary for me to insist on the other therapeutical remedies, such as benzoic acid, iodide or bromide of potassium, etc., which have been recommended by certain obstetricians. Alone, the the bromide of potassium merits, perhaps, a special mention, but these drugs are so much inferior in therapeutical strength to chloroform and chloral that to count on them exclusively as real means of cure would be exposing one's self voluntarily to cruel deceptions.

*(To be concluded in January number.)*



## THE METHOD OF CLOSING THE ABDOMINAL INCISION AFTER LAPAROTOMY, AND THE UNITING OF THE WOUND.

BY PROF. HOWITZ.  
COPENHAGEN.

One of the great inconveniences of a laparotomy is the danger that the patient runs of having a ventral hernia in a cicatrix which is not solid. Many researches and propositions have been made in order to secure a better result. Although it has been thought several methods which have been proposed have been able to obviate this, it is none the less certain that this end has not been attained, and the proof of this is that researches in this direction are still being carried on.

It would be too long to run through the descriptions of all the various methods for the incision and suturing of abdominal walls, and I only wish here to give my personal opinion regarding the proper ways of carrying this out successfully.

A good and solid cicatrix depends on three conditions, without speaking of the cleanliness of the wound, of its antiseptic condition, and of reunion by first intention, which are conditions *sine qua non*.

These three conditions are; in the first place, the quality of the borders of the incision; secondly, the manner in which the sutures are placed; and lastly, the material

used for suturing.

Regarding the first condition, namely, the quality of the borders of the wound, we will soon be all of the same opinion that small incisions give more solid cicatrices than very long ones and are not so apt to give rise to hernia later. It is not that I wish to defend the small incision which has been approved in other points of view. As a general rule, the incision is made on the *linea alba*, but I have my doubts as to whether this point is the best for securing a good cicatrix. I do not believe it is, and for the following reasons: In the first place it must be admitted that the thicker are the borders to unite the greater are the chances of obtaining a solid cicatrix. Secondly, when the borders of the incision contain little fat the reunion is firmer. Thirdly, the more the tissue be homogeneous the incision will be more equal and cicatrization will be better accomplished. And lastly, the less there be of traction in different directions, the more solid and resistant will be the cicatrix.

If these four suppositions are correct, we must admit that the

*linea alba* is a poor place to incise when we consider cicatrization. The fact that the *linea alba* is the thinnest point, the point at which the incision is the least deep, is one of the reasons that have been for preferring it. The borders of an incision made on the *linea alba* are always thinner than the borders of an incision made a little to the side, along the rectus muscle. Then by an incision on the *linea alba* we have all the layer of fat to which Delbet calls attention in his excellent work on Pelvic Suppuration in the Female. Those of us who have performed a number of laparotomies, cutting through the *linea alba* will have always remarked the abundance of fat, often very considerable, which has been found. Masses of fat of various sizes stand out all around on the borders of the incision and even when retracted considerably, they still remain components of the line of incision.

This fat which is poorly vascularized is incapable of fortifying a cicatrix. Even if no suppuration takes place and the cicatrix has the appearance of being good and solid, the fat is taken up in the cicatrix and renders the latter less solid, and resistant after the cure, when the patient begins to go about.

In cases of suppuration, the fatty layer of Delbet which, starting from the umbilicus extends downwards to the symphysis, will be a good conductor for pus. Consequently, on account of the fat, the *linea alba*

is not a good point for making an incision. Also when we incise on this line we very easily open the sheath of the rectus by cutting either a little too much on one side or the other which also is a cause of irregularity of the borders of the wound and the solidity of the cicatrix.

And lastly, when the incision in the *linea alba* is closed and the recti muscles begin to functionate, a tension in the cicatrix is produced by the contraction of these muscles. This tension which takes place on both sides causes the cicatrix to become thinner little by little and thus favors the formation of hernia. For this reason I have abandoned in my cases the incision through the *linea alba* and I make it now in the following way; after having determined on which side the tumor is situated, I make an incision parallel to the *linea alba* at about two centimetres to the side of it, the knife passing through the sheath of the rectus; then I separate the muscular fibres in such a manner that the inner mass is a centimetre broad and is then retracted.

Beside the fact of having a better point of incision on the side of the growth, it also presents the following advantages for a cicatrix. It forms thicker lips which do not contain much fat and are perfectly regular: and also, we here unite homogeneous tissues. The greater part is made up of muscular fibres which unite well and solidly. Later on, when tension of the abdominal

wall exists and the muscles are in action, there will be no traction towards the side due to the contraction of the muscles, because it is united in its length. For long incisions, those which most frequently produce hernia, the cicatrix which results after my method has a support given it by fibrous tissues.

Regarding the suture, there are especially two points to be remarked. The first is the choice of the best method of making a suture; and the other, the choice of material.

As to the methods, I would make a distinction between a suture in layers, simple sutures including the inner thickness of the abdominal wall, and sutures comprising the entire wall, excepting the peritoneum.

Suture in layers has the advantage of securing a more equal adaption, a better union of the incision and many surgeons prefer it to all others for this reason.

One of its inconveniences is that we have buried sutures in the cicatrix itself. For making these sutures we may use absorbable material of various kinds, metallic sutures or fishgut. Absorbable material has a double disadvantage: one is anti-sepsis which is always doubtful and never so sure as with metallic sutures, fishgut or silk that can be sterilized. On the other hand, the time in which it may be absorbed is impossible to establish, because we never know when the suture ceases to hold the wound; and too rapid absorption may have a very unfortunate effect as regards the solidity of the cicatrix.

This mistrust that we have in absorbable material has made us employ metal and fishgut sutures when these were buried. In order to make them serve in a satisfactory way, a certain number of sutures are made and drawn tightly, and all their ends when cut should be found in the line of union. But it appears to me that such a series of knots must in some degree prevent union of the wound and thus weaken the cicatrix. And still more, it appears to me very probable that these permanent sutures may cause difficulties when the abdomen becomes distended, as for example, in pregnancy, secondary tumors, or other similar conditions.

Heppner's suture in form of the figure 8 appears to me to combine all the advantages of the suture in layers with those of simple suture. It can conform itself to the circumstances according to the quality and thickness of the abdominal walls. We can increase or diminish one or the other of the two loops of the 8; it unites better than the simple suture and it is to be preferred to the buried suture because it may be removed after the cicatrix has become solid.

Fishgut is important for the figure of 8 suture, and it may be used after having been left in a boiling 5 per cent solution of carbolic acid for a half-an-hour. It is more subtle than the metal suture and possesses the same strength as the latter. It does not swell like silk and consequently, does not increase the size of the suture canal. It is a perfect material which may remain for many years in the body.



In order to perform the figure of 8 suture the needle is pushed into the peritoneum near the border of the incision, so that the fold produced in the serous membrane is not too considerable between the borders of the incision, because in spite of the rapidity with which the peritoneum unites, its union is not sufficiently solid that it will not give in to an intra-abdominal pressure, and the peritoneum is that part of the cicatrix which first sustains the shock.

If the layers of the peritoneum pass a little to one side, it produces a sort of a wedge in the abdominal wound, and the greater this wedge is, the more the remainder of the cicatrix is weak; consequently we should only take as little peritoneum as possible. The needle should be very curved and should be made to include as much of the abdominal wall as possible. It is especially necessary to pass it around the pockets that may be found, as for example, retiform adhesions due to former laparotomies. Then the needle should be brought out in the middle of the thickness of the abdominal wound, although this must depend on the quality of the latter. It is better not to push the needle from the right side into the left directly, but a little bit higher or lower and still on the same level. By doing this we are better able to draw on the sutures because we are then sure that they are not interlaced. The needle should be brought out through the skin at a half a centimetre from the line of incision so that it will be easier to remove the sutures, and also this will

give the cicatrix a better aspect.

According to the length of the wound and the thickness of the abdominal walls, the figure of 8 sutures are placed at distances varying from one half to two centimetres. Between these a superficial suture should be inserted.

It is better to leave the sutures in place for a fortnight if nothing contra-indicates this. One of the ends of the suture is pulled upon by a blunt hook and then cut, and the next day it is removed by pulling on the other end. In this manner the suture gives away slowly and easily.

For a very thin abdominal wall, I would propose the following method which offers the best guarantee for a solid cicatrization. Each lip of the wound is divided into parts of the same thickness; then the figure of 8 suture is applied in such a way that the line of demarcation between the two parts shall be the point where the two loops of the 8 will meet. Thus we will have a solid plan of union and to which a very considerable breadth may be given. The most common sutures are those which include the inner abdominal wall with here and there a few superficial ones, and it is thought a good result could be obtained by tightly drawing the inner sutures. In many cases this is correct, especially for thick abdominal walls and when a small incision has been made; but this suture has deceived us so often that the profession has been led to making buried sutures, and I myself have especially employed the figure of 8. If we

should desire to use the simple suture, we should include as little as possible of the peritoneum on account of the unhappy influence that the latter exerts, as I have already mentioned. I should be rather of the opinion of surgeons who did not include the peritoneum at all in their suture, because in this way a projection of the peritoneum into the abdominal cavity is more easily avoided.

Allow me, gentlemen, to indicate a few more considerations which have their importance regarding cicatrization.

We often produce by opening the abdomen a considerable hæmorrhage. In such a case we should use artery forceps as little as possible in order to avoid compressing the tissue in the line of union. If the hæmorrhage cannot be arrested by a compress of hot cloths, an excellent measure is the application of temporary sutures.

They do not compromise the parts which are later to be united, and as they are rapidly applied they quickly stop the hæmorrhage and they also help to keep apart the borders of the incision. We should also have the wound in a clean condition without blood.

I usually order my patients to remain lying down for three weeks, and on account of the cicatrix I always have them wear a linen binder.

During last June I received news of my patients who underwent laparotomy from 1893 to 1896. The success of the new method appears to be complete in the majority of the cases. Several patients have become pregnant since the operation, and this has apparently in no way hurt the cicatrix which has remained firm and solid.



## THE TREATMENT OF ECLAMPSIA.\*

BY PROF. L. MANGIAGALLI.

The medical treatment represented by milk diet, tepid baths, diaphoretics and means that to stimulate the cardiac action, will check the disease in its earliest period. Bleeding, which in the past, was practiced so largely in pregnancy, had a preventive efficacy, can it be called upon to illustrate the probable fact that at one time eclampsia was less frequent? Peter did not doubt it and he attributed the actual greater frequency of eclampsia to the theory that he called "the deleteriousness of anæmia of pregnancy in place of plethore." When every given remedy remains inefficacious, the interruption of the pregnancy ought to be promptly done, without regard to the age of the foetus. Many times, as Barnes has already written concerning his experience, repeated in my own, have I regretted waiting too long, and of not having put an end to it. Are we able to say as much of the medical treatment of the outbreak of eclampsia? Ought it to be considered as a true and proper cure of the disease or only as a symptomatic cure that ought then to modify opportunely the ultimate result of the cases?

The medical treatment represents, in my opinion, a valuable aid that

inhibiting some symptoms, present or threatening, permits one to await in many cases, conditions more favorable for obstetric treatment.

The multiplicity of the remedies recommended, and time and again praised or condemned, indicate at once, how little faith should be given them.

Not one of these can hope to occupy the place of a rational causal therapy, not even bleeding followed by endovenous injection, for which few elements of judgment yet exist. If we allow ourselves to depart from theoretical preconceptions, keeping in mind the results of the researches of Bouchard, according to which, drawing 32 grammes of blood from an uræmic, he obtained 50 centigrammes of extractive material, (a sixteenth part of that which the urine ought to eliminate), while to obtain an equal result, 280 grammes of diarrhœal liquid, or 100 litres of sweat, is required, bleeding and also the local blood-letting would occupy the first place in the therapy of eclampsia and then would follow the drastics, and last diaphoretics. In such a sense the means indicated would represent a casual treatment, while anæsthetics and morphine moderating the excitability of the

\* Concluded from November number.

motor centres, cortical and subcortical, would represent a symptomatic treatment. Calabar-bean recommended by Butterfield, nitro-glycerine, widely used in the hospitals of London, veratrum viride, to which Oatman called the attention at the International Medical Congress at Washington in 1887 and finds a good deal of favor among the American physicians, especially of the South and East, would partake in the second category. With this last I have no experience and have not been informed that it has been used by any clinic in Italy. Among us there prevails a mixed symptomatic treatment, but in this, drastics, morphine, chloral in large doses have the greatest share.

Bleeding, which although it registers in its favor some brilliant statistics in the times past, has lost much ground. In a few cases in which I have adopted it, partaking of the conceit of making a casual cure, I have not been satisfied and am convinced that sometimes the depression which results from it, overcomes the advantages. I have not lost sight of the eloquence of the statement of Charpentier who has fixed the mortality of bleeding at 45 per cent. It is undoubted that the two means that seem to have given the best results are chloral, in large doses, and morphine. They are the two of which I personally have made the best proof in conjunction with obstetrical treatment. Pilocarpine, which quite recently in America, has been praised so much

by Winter, is not employed by the greater number of the clinics and the hydrotherapeutic measures among which the consul of Goubaroff merits record, to make hot applications to the lumbar region, though having some efficacy, oppose the fundamental principle of disturbing the rest of the patient as little as possible. Such are my impressions and my clinical convictions upon the efficacy of the means indicated, but if we try to represent in figures the rank of these, it appears to me extremely difficult to do, since the greater number of the clinics are using the mixed treatment, it is almost impossible to prove how much may be owed to one or the other or to the obstetrical treatment which many times is its complement. So great the optimistic statistics of Charpentier respecting chloral, as great is that optimistic one of Viet respecting morphine (mortality 4 per cent.), and, on the other hand, that pessimistic report of Tittel, for the very same therapeutical agent, (mortality 57 per cent.). They seem to me susceptible of criticism.

From morphine administered in high initial doses according to the recommendations of Viet, I have obtained inestimable advantages, especially in the cases falling under my observation at the first outbreak of the eclampsia, and from its use associated with rupture of the membranes, had results which can be considered excellent in eclampsia *ante partum*.

While chloral and morphine seem



to me inferior in spite of their reputation, many times they are given in the cases in which there had already occurred a large number of convulsions, the woman is found in a state of profound coma and the respiratory organs show undoubted signs of intense congestion. In such cases, it is my conviction that bleeding, and in a few cases, drastics merit the preference, also that chloroform ought to be employed in preference to ether in order to obtain, as early as possible, the deliverance of the patient under profound narcosis.

First then, in passing to discuss the obstetric treatment, it is necessary to turn our attention to the fœtus in comparison with eclampsia, not only because some obstetricians endeavor to show the relation between eclampsia and the waste products of the fœtus, but also because the results that are observed in regard to the fœtus lead us to establish some therapeutic corollaries. All obstetricians are now agreed in admitting that if the prognosis is grave for the mother it is much more so for the fœtus. For viable children considered in toto, the percentage of fœtal mortality is given by Olshausen at 28 per cent.; Löhlein 44 per cent.; Winekel 77 per cent; Schreiber, for the 2nd. Obstet. Clinic of Vienna, from 1880 to 1895, 32.10 per cent.; Dührssen 49 per cent; in advance of these we have those more favorable of Schauta 24.30 per cent; Pawper-tow 24.70 per cent.; Bidder 23.10 per cent.; Rosthorn 21 per cent. Such a mortality is naturally greater

if we consider it only in regard to the premature fœtus.

In the complete Italian statistics gathered by me, not making distinctions between the fœtus dead before birth in utero or abortions, we have a fœtal mortality of 37.42 per cent.

In the report of the Clinic of Pavia, from 1883 to 1896, such mortality is very low, represented by 16 per cent., while in that of the Obstet. Dept. dell'Ospedale Maggiore of Milan we have 20 dead children, counting those dead before birth, and during the birth those not viable, *i.e.*, a mortality of 52.63 per cent. This mortality ought to be analyzed, because the statistics of the Ospedale Maggiore of Milan, for these as for other cases, appear very different than is found elsewhere.

As a new hypothesis to this, advanced by Inverardi who attributes eclampsia to an intoxication caused by the products of waste material of the fœtus, it will not be without benefit to examine my statistics to determine the smallness from such a point of view. Bidder has already observed that in about a third of the cases, eclampsia arises at a time in which it is difficult to believe that the products of waste material of the fœtus can be the cause of it. Also the examination and analyses of the facts contained in my statistics would not be favorable to such an hypothesis. I write in this table the principle data concerning the fœtus which I have desired to compare with the outcome of the mother.

No.	Weight.	Child.	Mother.
1	2300 gram.	Alive	Recovered
2	2850 "	"	"
3	3200 "	"	"
4	1800 "	"	"
5	1000 "	"	"
6	1920 "	"	"
7	1400 "	"	"
8	2500 "	"	"
9	(Only the indications of life.)		"
10	(Treated for Eclampsia post partum.)		"
11	1500 "	"	"
12	2300 "	"	"
13	1100 "	"	"
14	2050 "	"	"
15	3100 "	"	"

N.B. In one case the pregnancy continued.

No.	Regarding the dead Fœtus.	Mother
1	Monstrosity weight 1700 gram. without abdominal liquid	Recovery
2	Weight 1400 gram.	"
3	Macerated, weight 2600 gram.	Died
4	Weight 3340 gram.	"
5	" 1800 "	"
6	Sixth month	Recovery
7	Weight 750 gram.	"
8	" 1500 advanced maceration	"
9	Died before birth	Died
10	Dead	Recovery
11	Macerated	"
12	Weight 450 gram.	"
13	" 2500 gram. anencephalous	"
14	Monstrosity	"
15	Seventh month	Died
16	Weight 2050 gram.	"
17	" 2000 "	Recovery
18	" 2100 "	"
19	" 2600 "	Died
20	Fifth month	Recovery
21	Weight 3600 "	"
22	" 2000 "	"

We have had 16 live children, comprising that one belonging to the pregnancy that continued, and 22 dead, ante partum, post partum, or abortions. No twin pregnancy figures in my personal statistics.

It is singular after all how in all

the cases in which there were living children (15) the mother recovered and it would be interesting to make such a research in large statistical material.

The persistence of the life of the child indicating a less degree of maternal auto-intoxication would seem to be a criterion of favorable prognosis, in opposition to unfavorable, as it ought to be if the eclampsia is of foetal origin.

It is true that even with this hypothesis one might be able to accept a slight degree of intoxication of foetal origin which allowed the outbreak of eclampsia without killing the fœtus. On the other hand, in my statistics, these not only figure, compared to other statistics, a noteworthy number of premature children and abortions, in which latter ones it is less likely to be due to the waste products of the fœtus, but there are three cases of maceration of the fœtus, in which death taking place a few days before, the outbreak of the eclampsic attacks had not been avoided.

The favorable influence of the fœtus is not confirmed by the statistics of Goldberg, since in 48 cases in which eclampsia occurred before delivery, 10 terminate in death, and in the others from the death of the fœtus at the termination of delivery no noteworthy diminution was observed.

It having been proposed to remain in as objective a field as possible, I limit myself to making these observations and will now consider the therapeutic problems. The principal, the

fundamental one, has reference to the influence that emptying of the uterus exercises upon the progress of the eclampsia. The early and careful emptying of the uterus has been considered at all times as the principal curative means of eclampsia, and Borsieri, speaking of eclamptic women, though recognising the usefulness of bleeding and the anti-spasmodics, wrote:—"Sed protines danda opera est ut a fœtu expeditissime libereatur."

It is such a precept that has nearly always given strength to Italian obstetrics and strengthens it daily, for this, rather than expressing my convictions upon such a point, I am able to affirm, and express the sentiment of the Italian school.

To me it has always seemed that the contradictions arise from being willing to accommodate the observations and experience with discordant doctrines.

Let us examine the statistics, but without any preconceived idea. According to the ancient statistical table of Wieger in 112 cases treated by divers authors, 39 times the convulsions did not occur and in 35 cases were found less severe. In that of Shauta, the convulsions ceased after the birth in 35.5 per cent., in that of Braun in 69.60 per cent., in that of Leopold in 54 per cent.; Bidder in 33 per cent. of the cases the eclampsia thought then cut short. Zweifel affirms that the complete emptying of the uterus favors the cessation of the eclamptic attacks and much more, emptying the uterus is regarded (Schonender), in that of Schreiber

the proportion figures 50.70 per cent., Dührssen 89 per cent. (Dührssen reckons also a diminution and Charpentier in his critical analysis of Dührssen reduces the proportion to 48.30 per cent.), and in that of Ols-hausen in 85 per cent. of the cases, the eclampsia ceased with birth or rapidly after it. Paletta was one of the few to deny such a favorable influence in the manner shown. He wrote as follows:—"Fœtus antem sive inseia et convulsa matre edantur, sive obstetricis artificio educantur parum ad convulsionis diminutionem videntur conferre."

Moreover, whether the child is brought forth by the mother, while unconscious and in convulsions or delivered by the physician they seem to influence equally the diminution of the convulsions.

According to Corradi, however, in 55 cases gathered from the reports of a few of our institutions, at Milan (Casati and Porro), at Genoa (Viviani), Palermo (Piazza), Pavia (Cazzani), Turin (Tibone, Peyretti, Nigra, Chiara, Pintor, Parella, Canera, Paventa, Calderini), in a third of the cases the convulsions ceased and in the others, 30 had very light repetitions. Compiling my few statistics and excluding three cases in which the eclampsia arose *post partum* (Obs. 23, 25 and 28), one case in which the attacks ceased before birth (Obs. 22), one case in which the pregnancy went on (Obs. 32), in 33 cases remaining in 25 there was not another convulsion, in four there was but one, in one two, and in the other three more

than two. We are then able to admit that in a large portion of the cases the eclampsia is at an end when the uterus is emptied and in one fourth of the cases it is undoubted the influence of the procedure in diminishing and in delaying the successive attacks.

Whatever considerations one wishes to make, whatever preconceived idea one has, however one wishes to turn the statistical facts, it is impossible not to recognize the importance of such a fact from the point of view of therapy. Even the partisans of the conservative treatment, who, as Charpentier, reject the incisions in the cervix, induction of labor, operative interference, Cæsarian section, accept implicitly the principle, and recommend delivery at the time when dilatation is complete or the dilatability of the cervix permits one to do it without violence. It is then not upon the principle but upon the mode of technique and practical application that the discord has owed its commencement. But it is attempted to injure the principle itself and the following objections might be raised:— 1st. From the possibility that the eclampsia may be cured without interrupting the pregnancy; 2nd. From the possibility that eclampsia may arise for the first time *post partum*; 3rd. From the fact that eclampsia can continue in a greater or less percentage of cases *post partum*; 4th. From the larger mortality that operative delivery presents in some statistics. But do such objections really injure the principle expounded?

I have observed one case in which I have seen the eclampsia and the concomitant renal conditions disappear without interrupting the pregnancy. But besides that this is exceptional (in the large statistics of Bidder there were only two observations of such nature), it only demonstrates that emptying of the uterus is not absolutely necessary for the cure of eclampsia, but does it not demonstrate that this may not be beneficial in the great majority of cases? As not rarely we succeed with an appropriate remedy in removing symptoms such as are considered as premonitory of eclampsia, so also this affection, if not severe, may be diverted, although it is the exception. This is the only logical conclusion that we can admit. It is more frequent that eclampsia arises *post partum*. Puerperal eclampsia figures in these cases in the thirty-eight observed by me in the Obstete. Dept. dell Ospedale Maggiore of Milan, in three in the Clinic of Pavia, in 20 in the service of the Guardia Obstetrica of Milan.

Eclampsia *post partum* which in my statistics reaches only 7.89 per cent., is represented by a far different percentage in large statistics, 21 per cent., in that of Brummerstädt, 26.70 per cent. in that of Schauta, 14 per cent. in that of Olshausen, 17 per cent. in that of Winkel, Löhlein 7.50 per cent., Clinic of Chrobak, 21.16, and about 28 per cent. in that of the Obstet. Guardia of Milan to which high percentage the nature of the institution contributes.



Nevertheless the outbreak of the eclampsic convulsions during the puerperium which were not present either during the pregnancy or at birth, give strength to the fact observed, of the influence alone exercised by delivery on the progress of eclampsia. Here as in the former case they wish to include more than the premises permit. The primary origin of eclampsic convulsions *post partum* is there to attest that those conditions created by the pregnancy are not yet dissipated and perhaps have found in the mechanical and physiological moments of the birth, conditions which are able to aggravate. The observation of such cases demonstrates finally that in many these phenomena exist which can be considered as equivalent to eclampsic convulsion or constituting the eclamptic state. That is so in a large majority of the cases, the attacks are light, like the distant thunder of a storm which is passing away and not severe, only coming on a little while after the birth. From the report of Chrobak it is found how in 29 cases of eclampsia *post partum*, 12 times it occurred during the first hour after the birth, 9 times from the second to the eighth, and fifteenth, twenty-fifth, and twenty-eighth hour. Some, and among them Cazeaux, have held the opinion that such an influence was exercised when the eclampsia had lasted a short time, but was not so when the convulsions had continued for a long

time. Belluze, who among the conclusions of one of his works, said that the most valid means in overcoming eclampsia is to favor or procure the emptying of the uterus, and he has brought forward facts that demonstrate even in extreme contingencies, the beneficial influence of emptying the uterus upon the repetition of the eclampsic attacks. Regarding the mortality it is generally considered less. If we take as example the Second Obstet. Clinic of Vienna in its two periods, 1836—1880 and 1880—1895, to which Schauta and Schreiber refer, we have the mortality of eclampsia *ante partum* represented in the 1st period at 52.20 per cent., in the second 30.43 per cent., the mortality of eclampsia *inter partum* as 40.2 in the first, as 18.82 per cent. in the 2nd, that of eclampsia *post partum* at 27.20 in the first, at 13.79 per cent. in the second.

In regard to the continuation of the convulsions after the birth, it indicates that the birth of the child is not always able to produce a cessation *ipso facto* of the conditions giving rise to their production.

The persistent vomiting of pregnancy which offers with eclampsia analogies perhaps of the same origin, can be considered in the same relation to the obstetric therapy. The statistics although small, when they are derived from facts observed exclusively in Italy, are perhaps more suitable in this special regard in forming such a conviction that the examination of large statistics, resulting from the succes-

sion of many observations by many observers, but respecting which it is impossible from the few and bare figures of the registry to call up the clinical case in its entirety and give it its special physiognomy.

How can one deny the favorable influence mentioned, when in making a Caesarian section in the gravest conditions, we see as if by magic the conditions of the patient improve rapidly and the attacks not repeated? This suffices also for the fourth objection derived from the larger mortality that operative interference gives to eclampsia according to some statistics. Schauta from the analysis of cases observed in the Second Clinic of Vienna from its foundation up to 1880, has concluded that forceps without strong indications, and operative interference especially, are to be rejected. And every more active intervention accepted either to bring on or accelerate the labor is especially combatted by Charpentier in his thesis, in his treatise, and in a recent work in which he refutes the conclusions of Dührssen.

According to Charpentier the mortality of spontaneous birth would be 18.96 per cent, induced labor 31.04, and operative 40.74 per cent. In other terms, the operation would be more dangerous than beneficial: besides there would be a mortality more than double when the birth took place without assistance.

Such a conclusion is contestable and repudiable on the ground of some modern statistics, but who

does not see how forced and irrational this division in two series according to the method of termination of the birth, and to wish to draw conclusions regarding the mortality of a certain series, as well as the influence of operative interference.

What an outlook would await women not yet delivered? Would two series of such a nature be comparable if the principle of non-intervention should be adopted without distinction in all the cases that come in a clinic? But how shall we compare them if in the series of operative cases that enter of necessity, the graver cases and those complicated ones that really demand obstetric interference not only for the fact of eclampsia, but also by reason of the complication itself? My statistics offer a mortality very much larger in the operative series but they reflect in the greater part on women brought into the Clinic in extremis and died a few hours after their delivery, which took place shortly after their entrance.

Without wishing to pretend that a more prompt intervention would have saved them, as is my conviction, is it not more logical to assume that they died not because of, but in spite of the interference? Why should we enlarge the statistics of the operative series with such cases? The examination of the numerous statistics published in these late years, will render evident that the mortality of eclampsia has diminished, and diminished by means of a complete and timely interven-

tion. I cite the statistics of Zweifel, Chrobak, and the Guardia Obsterica of Milan, the comparative statistics of the practice of Inveraidi and of Bossi.

Admitting on the other hand as a fundamental principle, the excellent influence of emptying the uterus upon the progress of eclampsia, we ought to have in mind in its application, that the peril of the operation may not overcome that for which it is undertaken, and that it may be conducted in such a manner to exclude all violence, but giving to this word the signification that it ought to have and not that much abused one of intervention which arises from an ordinary application of forceps or version, in conditions the most favorable.

Before the antiseptic era it is true we were not able to consider our operative intervention in the same manner in which we regard it today; it is true that per se it was the cause of a large mortality in comparison with that observed today. If the antiseptics do not seem to have greatly diminished the prognosis of eclampsia, they have contributed indirectly to the decrease, rendering innocuous many operations which were at one time perilous.

So then, it is evident that in a clinic that employs complete asepsis, and able and instructed assistants, the applications of such a principle will have greater extension than in private practice—especially in country practice.

Examining as to what the actual tendencies of the Italian obstetricians

are in this regard, as results from their publications here united, I am able thus to make the statement that among them it is an almost general precept to bring on the labor, hasten it, and deliver the woman promptly, when conditions exist which permit it to be done without great violence, and very many of these are radical, such as dilating or incising the cervix, and in extreme cases not hesitating to perform Cæsarian section. To delineate then my convictions upon this question I will maintain the universally accepted divisions of eclampsia post partum or puerperal, inter partum or during birth, ante partum or during the pregnancy. To each of these a different degree of frequency and a different prognosis pertain. The greater part of the authors admit as the order of frequency, inter partum, post partum, ante partum, while others (Weiger, Charpentier), birth, pregnancy, puerperium. Bailly proposes, on the contrary, to substitute the following order: pregnancy, birth, puerperium.

The percentage of cases of eclampsia during pregnancy, represented by Löhlein as 4.7 per cent., Shauta 14 per cent., Winkel and Braun 23 and 24 per cent., seems too low to Olshausen.

When one thinks that the larger part of the cases of eclampsia fall under the observation of the clinician when there have already manifested repeated attacks and when one thinks of the rapidity with which, as is generally admitted, the labor comes

on in eclampsia, it is permissible to doubt that the given percentage, *ante partum*, corresponds to the reality. It is probable that some cases of eclampsia which are seen, *inter partum*, have had their origin *ante partum*, and that the statistics reported do not show the relative frequency with which eclampsia arises during pregnancy or during birth, but refer rather to the moment at which the case came under the observation of the clinician and they believe that they see more cases of eclampsia during labor than before.

In my few personal statistics (38 cases) these are thus divided in the order of frequency :—eclampsia *gravidarum* 19 cases with four deaths, mortality 21.05 per cent.; *inter partum*, 16 cases and four deaths, mortality 25 per cent.; due essentially to the fact that in all the four cases treated, the women had had at home as many as fifteen or twenty convulsions and that two of these brought to the hospital in extremis, lived scarcely an hour after entrance; *post partum*, three cases, mortality nil.

It is my opinion that one of the circumstances which aggravate the prognosis of eclampsia is the fact that the women that are affected and come into the clinic are not able to conveniently receive attention until the beginning of their illness.

The fact that in the form considered most grave I have had the least mortality is there to prove it.

Analysing the rest of my statistics, keeping in mind the disturbances that

chance and ill fortune, or the severity of the illness produce in the summation of the given reports, the other fundamental principle does not become changed, viz.: that *eclampsia is less grave during the puerperium, more serious during pregnancy*, which accords well with the other already established fact that, *emptying the uterus has a beneficial effect* on the progress of eclampsia.

In other terms according to my judgment, the more difficult the emptying of the uterus, in a like manner the prognosis of eclampsia, *cæteris paribus*, is more grave. As a warning then to this obstetric indication, to me sovereign, of emptying the uterus, one must be assured that the danger of the operation is not greater than that of the disease. Let us resume the principle events which occur in practice, it may be in eclampsia *inter partum* or even *ante partum*.

When eclampsia occurs in the course of the labor, and this has already begun, and is in the second stage, or if in the first stage and the cervix is dilated or dilatable, all attempt on first opportunity to terminate the delivery, the ultra conservatives do it because they see in such cases indications of ultimate inertia uteri, in the endurance of the fœtus, etc. Those do it a fortiori that recognize in emptying the uterus the very best means of stopping or mitigating the eclampsia.

If the cervix is not sufficiently dilated, the great majority agree on a more active treatment, practicing multiple incisions in the os uteri.



Disagreement begins when the cervix is not dilated or dilatable. Here now we have a great variety of cases:—there are some in which the cervix is shortened, dilated, or so prepared or softened, that the means adopted to secure that necessary dilatation for the prompt delivery of the woman, lose all semblance of violence, and the forced delivery is so in reality, in name only. Rizzoli with reason, wished it to be called “*Parto provocato artificiale instantaneo od immediato*” rather than forced. Digital or instrumental dilatation, especially with Bossi’s dilator, or that of Tarnier, represents, in my opinion, a prompt and innocent method, a point of violence that brings us to the fundamental indications mentioned a little while ago. It is preferable in my opinion from the point of view of antisepsis, and in technique to dilatation with Barnes’ bags, with the bag of Champetier of Ribes, or with the colpeurynter that Dührssen recommends in some cases, to make the conditions favorable for deep incisions. I believe it to be preferable to these because it is less dangerous, easier, equally efficacious, although less rapid in its action. Dührssen himself says that his process is for the consideration of the expert specialist only. This is directly opposed to the fundamental principle established by him, of emptying the uterus per vias naturales as soon as a convulsion is recognized, besides it is very certain that few women would have the good fortune to happen on a specialist immedi-

ately after the outbreak of the first convulsions.

My experience, on the other hand, convinces me that one ought to bring to bear on these extreme consequences, perhaps pernicious, a principle that I consider as fundamental; highly beneficial, the rapid emptying of the uterus by means of an intervention more active than that which we have done in times past, and which are done to-day only by a few obstetricians. I think, in fact, that even in this class of cases the clinician ought to be a guide to the obstetrician, who will be bold more willingly, but only when a well demonstrated necessity, arising from the progress of the disease, demands it; one should contrast to such a maxim the difficulty even from the first attack. If we examine the practice of Dührssen from a technical point of view, a few important objections arise, *i. e.*, the danger that the incisions may extend too far, the peril of hæmorrhage, the greater facility of sepsis. Dührssen disputes the possibility of the extension of the incisions to the parametrium, affirming that with four deep incisions even to the vaginal insertion, it is in fact impossible. The head, with the os uteri so dilated, passes easily without the extremities of the incisions being placed under the least tension. Such an affirmation contradicts the anatomical studies and experience, as Herff has already related, drawing the proofs from the observations of Dührssen himself, since in five puerperæ examined afterwards, four present extensive

ciatrices of the vaginal vault. Such an extension of decisions I have observed in one of the few cases in which I had recourse to such a method. And it appears to me evident enough that in such cases hæmostasis is very difficult, and one does not obtain it even with tamponade, or with the provisory application of Klemmer, and that in every manner such lacerations favor the manifestation of septic processes. Italian obstetrics has in such a regard a splendid tradition, which encourages one to an intervention rather active. The story of forced interference in the agonizing woman is one in great part Italian, and eclampsia ought naturally to present frequent occasions of practicing it. The results were truly brilliant, so much the more when one considers the epoch in which they were obtained. Thus the women operated on by Golinelli (1843), by Ravani (1850), by Tallinucci (1857), by Finizio (1862), were cured, and two cases Valtorta operated on with a favorable outcome, 1858 to 1873, using in one the colpeurynter, in the other the hand and terminating the delivery in one with forceps, in the other with a version. Beluzzi (1863), communicated a favorable case, and Falaschi another, more recently, which he declares is due to such method; and Bossi of Eschia, Vitanza, at the International Congress at Rome have brought brilliant statistics into the field. In the obstetrics, which have been handed down to us in Italy, they do not make deep incisions to render possible the prompt delivery of the woman. A very interesting com-

munication regarding the same is that of Parea (1784 and Giovanni Santello, publishing in 1838 the story of a few cases of eclampsia, joined to the happy outcome of a vaginal hysterectomy, an operation which he thought the principal aid in eclampsia when the uterus was not able to be emptied by ordinary means. Dilatation indeed not always succeeds, for sometimes the fibrous consistency of the cervix, or its absolute lack of preparation, creates obstacles which it is possible to overcome with difficulty and make it sometimes impossible. In this third series of cases, in which the cervix is not completely softened, is not permeable, is not shortened, in which one treats eclampsia manifested in the pregnant woman, most frequently when not at full term but at the commencement of the labor, and the contractions have not as yet produced any modification of the cervix, there is no need of being governed absolutely by any preconceived idea. Still not losing sight of our chief aim of delivering the woman promptly, we ought to modify our treatment according to many circumstances, among which are especially, the severity of the case, as seen by the temperature, pulse, character of the renal secretion, the number and the rapidity of the convulsions later from the toxicity of the serum, the effect of the medical treatment tried, morphine, which in large doses at the beginning of eclampsia has my preference.

chloral, bleeding, veratrum viride; the existence of further complications which refer to the presentation, pelvis, existence of tumors, the condition of the external genitals, the length of the pregnancy, and the life of the fœtus. In every case one ought afterwards to rupture the membranes, according to my convictions, that is to say, to induce labor, regulating further procedures according to the progress of the labor and the disease. In 18 cases of eclampsia thus treated during pregnancy, there were three deaths, mortality 16.66 per cent., lower than my total mortality and lower than the mortality reported in some of the best reports.

Under such circumstances to the obstetrician called at the first attack of the eclampsia, I recommend practicing an hypodermic injection of morphine 0.03 grm. following it by a second if the attack repeats itself, and rupturing the membranes. If the gravity of the case, in spite of this, increases or is such as to demand prompt treatment, and the cervix is not at all modified, which ought to happen rarely as my experience of 18 cases leads me to presume, the obstetrician finds himself under the alternative of undertaking Cæsarian section or delivery per vias naturales by forced dilatation or the incisions of Dührssen.

I have already indicated the reasons which will guide the obstetrician in one way rather than in the other. The life of the fœtus, and the question of its living, will

have great weight in our decision, but independently of this the existence of pelvic dystocia, complications, or the extreme difficulty of delivery per vias naturales found in the given case, will make us accept Cæsarian section, more certain of saving the life of the mother by a bold intervention than by negligent expectant treatment. The experience acquired with Cæsarian section, independently of the theoretical speculations to which it has given origin, demonstrates to us at once the soundness of the principle in regard to obstetric therapy. According to a report of Doderlein in 19 eclampsies thus operated on, 11 were cured, but when one analyzes the cause of death in the eight cases not followed by a favorable outcome, and considers in what cases and under what circumstances Cæsarian section was undertaken, one realizes that it represents a beneficent resource even in extreme cases. The causes of death were, in fact: one from septic peritonitis (Uterine suture, Halbertsma, 1878), cerebral hæmorrhage, one (Muller), one by miliary tuberculosis (13 days after the operation, Wertheim), hernia once (11 days after the operation, Staude), pulmonary œdema, four, (three were in extremis, Czernin, Swiecicki, Rosthorn). Recently Cæsarian section was performed under the gravest conditions by one of my assistants, Dr. Decio, with a favorable result.

En résumé, while accepting the beneficent effects of medical treatment, represented especially by in-

jections of morphine, chloral, bleeding, veratrum viride, with which I have not had personal experience but is very highly praised by the American obstetricians, this (medical treatment) ought to be with the obstetric treatment in an inverse position to that established by the conservative obstetricians. For these the obstetrical treatment is the complement of the medical, and in like manner is but the consequence of certain obstetric indications. For myself and for those that prefer a more energetic obstetric treatment, this occupies the first place, represents a true indication of the disease and the medical treatment aids, prepares and assists it. From the foregoing it seems to me I am justified in the following conclusions:—

First.—The preventive treatment is highly beneficial, removing those conditions that are probably the expression of the auto-intoxication of pregnancy and so much the more if one is on the lookout for such conditions, comprising in most all albuminuria, especially in primiparæ, and in others gastric, sensory, and nervous symptoms. Milk, aided by active measures to disinfect the intestinal canal, increasing the diuresis, regulating the function of the skin, stimulating the action of the heart, constitute the sovereign remedy against eclampsia in its virtual state.

Second:—The medical treatment may be represented by bleeding, or by drastics, morphine, chloral, chloroform, veratrum viride, diaphoretics,

and it is essentially a symptomatic treatment, although a true and proper cure of the disease. It constitutes in every manner the only treatment in eclampsia post partum, and is a precious aid in caring for those conditions which permit obstetrical interference. Bleeding followed by endovenous or subcutaneous injections of the physiological solution of the chloride of sodium is a therapeutic method which depends on rational conclusions and has clinical facts in its favor, but these are too few and do not as yet permit us an adequate judgment of it.

Third:—The prompt emptying of the uterus constitutes the most important point in the treatment of eclampsia, but it ought to be naturally tempered on one hand by the gravity of the case, on the other with the peril of the intervention.

Fourth:—In eclampsia inter partum it is a good rule to terminate the labor when the conditions permit and to anticipate these by means of multiple incisions of the cervix, when this is contracted and dilatation is not sufficient.

Fifth:—In eclampsia in pregnancy induction of labor is indicated by means of rupture of the membranes, and the use of morphine, chloral or veratrum viride in large doses, they are of greater use when administered soon after the outbreak of the eclampsia, in order that the conditions may be as indicated in number four. If the case is grave, peril impending, and in spite of the rupture of the membranes associated with the indi-



eated means, if there is no hope of temporizing until the softening of the cervix and beginning dilatation, if the cervix is shortened and softened, forced dilatation can find, according to my opinion, more extended and easy application than the deep incisions of Dührssen. In the cases of the same category, in which the cervix

is also unprepared, or there exist conditions which render the recommended intervention particularly difficult, or contra-indicated, Cæsarian section has its justification, especially when the foetus is at term and alive.

Sixth:—Every intervention should be done under profound chloroform narcosis.

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### A NOTE ON INTRA-DERMIC SUTURE.

BY CHARLES GREENE CUMSTON, B.M.S., M.D.

*Assistant Professor of Surgical Pathology, Faculty of Medicine, Tufts College, etc.*

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In this short note it is only the intention of the writer to give the technique of intra-dermic suture trusting that other members of the profession may find this method, which was invented by the famous Chassaignac, as useful and excellent as he has found it.

This is a continuous suture and is carried out as follows: The epidermis is pricked at one centimeter above the upper angle of the incision and the needle is made to come out in the angle itself. Then sutures are made in the dermis in such a manner that the point of exit of the needle is symmetrical to that in which it will next penetrate in the opposite border of the incision.

When the needle has carried the sutures through both borders of the incision down to the lower angle it should be pushed directly into the latter and made to come out at one centimeter beyond in the axis

of the incision. When the thread has been drawn on it is prevented from loosening again by a perforated shot which is run on it and then pressed together.

A fine braided silk should be employed for this suture—Pozzi and Poncet of Lyons also employ silk.

This suture leaves the slightest cicatrix of any and is particularly indicated in operations on the face, neck, and upper part of the breast or thorax.

In operations in various parts of the body of young girls, when not too extensive, the writer always chooses this means of closing the incision.

Durand advises intra-dermic suture when the formation of a cheloid is to be avoided as well as in regions where friction occurs, such as in the elbow or knee.

In order to obtain a successful result, a rigid asepsis is absolutely necessary, otherwise a most unfortu-

nate failure will certainly occur.

The following figures taken from a paper by Pozzi will perhaps render the technique clearer to the reader.

Figure 1 represents the sutures in place. Figure II shows the process of drawing the borders of the incision together with small blunt

hook pulling on the sutures while Figure III represents a *supporting suture* which includes the skin and subcutaneous cellular tissue, and which is tied over two rolls of iodoform gauze.

871 BEACON ST.

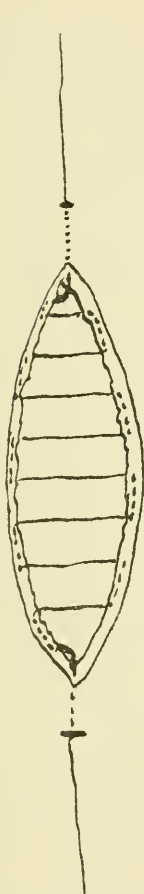


Fig. I.



Fig. II

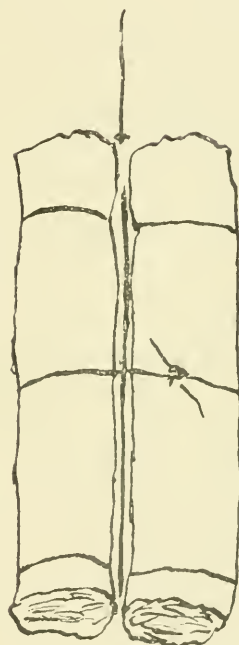


Fig. III

## REVIEW OF GYNÆCOLOGY.

### Extreme Cases of Pelvic Abscess, and a Method of Treatment.

BY WM. H. HUMISTON, M.D.

MRS. N. J., aged 22 years (widow), was admitted to the hospital July 18, 1896, and gave the following history: Her father is 53 years old and in good health, and the mother is of the same age but of a neurotic temperament. There are no hereditary tendencies in the family.

Personal history: In childhood the patient had diphtheria, scarlet fever and measles, and at the age of 16 years had a severe attack of "inflammation of the bowels," complicated by both kidney and bladder disease, but gives no history either of gonorrhea or syphilis. She menstruated for the first time at the age of 14 years, the catamenia appearing regularly without pain, lasting two days and scanty in quantity. Since she had pelvic peritonitis or "inflammation of the bowels," she has experienced great pain and has had many recurrences. She never has been pregnant. Her last attack, April, 1896, started with a chill followed by fever. The abdomen became very tense and painful, with severe sharp pains in the pelvis. Headache and backache were constant and she rapidly lost flesh and strength. Since the second week of her illness she has passed at intervals large quantities of pus by the bowel. Her general appearance when she was admitted to the hospital was that of a case of *extreme* septic poisoning.

Her temperature ranged from 99° F. each morning to 103.5° in the evening, and the pulse from 98 to

120 beats a minute. She was unable to walk upright and the effort was attended by much pain. The examination of the urine was negative, excepting for indican, which was found to be constant. The average daily quantity of urine was as low as 10 ounces.

An examination of the pelvis revealed a large mass filling the space to the right side of the uterus and extending into the belly half way to the umbilicus. The abdomen was exceedingly tender and tympanitic, so that palpation revealed but little. No fluctuation could be determined through the vaginal wall. After a week's preparation, during which time particular attention was given to increasing elimination by the kidneys, toning of the heart's action, disinfection of the upper bowel by daily catharsis, and washing of the lower bowel, the patient was anesthetized and celiotomy was performed, another vaginal examination under chloroform having failed to give in any part of the mass a sense of fluctuation.

Immediately underneath the incision through the abdominal wall the fundus of a fluctuating mass presented, which proved to be an abscess with thick walls. The adhesions round about were very vascular, and, after enlarging the wound, the intestines were found to be firmly matted.

A small trocar with a cannula was introduced and eight ounces of creamy pus with a fecal odor were evacuated. An incision was then made into the mass. The abscess cavity was carefully wiped with pledgets of cotton soaked in a strong bichloride solution and then

packed with gauze. The edges were stitched to those of the abdominal wound. The abdominal incision was closed and the patient quickly placed in bed. During the operation the patient's pulse was 140 and very weak.

On the evening of the second day her temperature reached 101.6°, the highest point during convalescence, and on the fourth day was 99°, with a pulse of 90.

Considering her condition at time of operation, her convalescence has been very rapid. She has gained in weight, is of good color, eats and sleeps well. For several weeks great quantities of pus, still with a fecal odor, were discharged, but the cavity is now almost closed, and only a small, healthy, granulating surface is left, with no evidence of the former communication between abscess and intestine.

This case and one upon which I operated last winter, in which the pelvic abscess reached enormous proportions, containing 110 ounces of pus, demonstrate what can be accomplished in these greatly reduced septic patients by not attempting to do a so-called complete radical operation.

The vital strength of both patients was extremely low and they could not have endured a long operation, and the separation of extensive vascular adhesions, exposing large tracts of raw surfaces to the danger of becoming septic areas and quickly overwhelming the already greatly enfeebled general system.

The method adopted was to only uncover the abscess; to pack sterilized gauze well over all exposed viscera; to aspirate the contents; to enlarge the opening to one of good size; to thoroughly wipe out all remaining contents; to pack the

cavity full of gauze; to stitch the abscess wall to the abdominal incision; and you are master of the situation.

The first case has now been absolutely well in every respect for six months, and performing all her duties without a symptom of her former trouble. The recent case has progressed to a degree that enables us to predict for her also a complete recovery.

We shall undoubtedly meet cases of this nature in which a complete recovery will not take place until after a secondary operation, but the primary operation will relieve the system of sepsis, and in a little time the general condition will be so greatly improved that the risks of a radical operation will be reduced to the average degree. — *Cleveland Journal of Medicine*, Oct., 1896.

### The Importance of Making Examinations of the Sigmoid Flexure of the Colon.

BY A. B. WALKER, M.D.

THE sigmoid flexure, as you know, is the double curve the descending colon takes before it terminates in the rectum. Treves claims that it is not usually like the capital S shaped, but a large loop about 17 1-2 inches long, with the top of the loop sometimes even touching the right side of the pelvis. In two cases in which I opened the abdomen and found the disease in the sigmoid, in one, the loop, as Treves calls it, extended over to the right side, and in the other it was lying in the median line. The upper part of the sigmoid is retained in its place by a loose fold of peritoneum, which accounts for its free movement and the different shapes it assumes. But at the



lower end of the flexure the fold of the peritoneum is quite short, and holds the part up close to the sacroiliac symphysis. The sigmoid hangs down in the pelvis like a sac when not distended. The rectum is narrower where the sigmoid flexure joins it than further down, even narrower than the lower part of the sigmoid flexure.

From a mechanical standpoint the danger of feces accumulating in the double curve or loop is plain to be seen, with the opening in the rectum smaller than the sigmoid. But we do not mean to reflect on the mechanical construction of the sigmoid, for it has a wise and important function to perform, that of being a receptacle for the final disposal of the feces between the acts of defecation, as well as by its peculiar shape, to prevent the too rapid passage of the feces and gas from the bowels. The function of the rectum being to carry off the feces and not retain them, as is generally supposed, when the daily evacuation from the bowels is not observed. O'Beine claims that the main portion of the mass is lifted back into the sigmoid flexure, when the desire to go to stool is not attended to, thereby leaving the rectum comparatively free from feces. While this may be true, I know that I have often found, while making vaginal examinations, that the rectum was filled with a large fecal mass, but how long this mass had been in the rectum I could not say, or whether it was lifted into the sigmoid flexure before its final expulsion. I do not know.

In the male I have rarely found feces in the rectum to any considerable amount. When the feces are lifted back into the sigmoid and retained there, the watery portion is soon absorbed and the accumulated

mass acts as an irritant, thereby causing congestion, inflammation and ulceration of the mucous membrane, and as the hardened mass is finally forced out through the rectum it causes hemorrhoids and many other pathologic conditions of the rectum. But as I wish to confine my paper to the sigmoid flexure, will leave the disease of the rectum out.

There is no doubt that the sigmoid flexure is the most common seat of obstruction in the bowels, and it is well for us to keep in mind the loop shape that the sigmoid is likely to take when we feel a hard mass in the median line, or even on the right side.

Case 1. Four years ago I made an exploratory incision in the abdomen for what seemed to be a large fibroid tumor. In fact, it was so diagnosed by several of my medical friends. But when we got the abdomen open, to our surprise, it was the sigmoid flexure lying in the median line and enormously distended with feces. The gut was hypertrophied, that is, its walls were quite thick, seemingly 1-4 inch, with a channel around the mass to allow the feces to pass. We made a four-inch incision in the bowel and scooped out 15 to 20 pounds of hard feces, as well and thoroughly packed as the clay in the ground. This opening in the bowel was closed with 16 Czerny-Lembert silk sutures and dropped back into place. She made a good recovery and in eight months gave birth to a healthy child. This case gives the history before the operation of having had this supposed fibroid for eight years and that before she noticed it, she had suffered from constipation but during later years her bowels had been loose.

Case 2 was that of a married lady, 38 years of age, who had

pain in her left side, endometritis and internal hemorrhoids with a mucopurulent discharge from bowels. She has a cachectic look, as though there was absorption of some septic material which was attributed to the condition of her uterus. Dilating, curetting and packing her uterus cured her endometritis, dilating her sphincter *ani*, and removal of her hemorrhoids cured her rectum, but the pain in her side and the discharge from her bowels continued, and the cachectic appearance was no better.

Case 3 was that of a single lady, aged 24 years, who had a pain in her side and back, dysmenorrhea, a small fissure in her anus with a mucopurulent discharge from her bowels. Dilating her uterus helped her dysmenorrhea, and dilating her sphincter and curetting the fissure cured her rectum, but the pain in her side and back and mucopurulent discharge were no better.

Case 4. A married lady, 48 years of age, had pain in left side and back, a rectal ulcer, several enlarged *papillae* and also a mucopurulent discharge streaked with blood from her bowels. A thorough dilation of her *sphincter ani* muscle, and curetting the ulcer, clipping off the *papillae* cured her rectal trouble, but she still had the discharge from the bowels. About two weeks after the operation she remarked to me that she believed her disease was higher up and that I had not reached it. I tried to pass a Kelley's long rectal speculum without an anesthetic, but failed. I succeeded in passing a Wales Bougie No. 5, and thoroughly washed out her sigmoid flexure with hot water, after which I threw up into her sigmoid, through this same bougie, four ounces of a saturated solution of boric acid, which she retained six hours. This

treatment was repeated every other day for a period of one month, when she was discharged cured. The pain in her back and left side were entirely relieved and the discharge from her bowels stopped. My experience in Case 4 enabled me to see where I had failed to cure cases 2 and 3. No 2 was placed on the same treatment and is getting well. No 3 is not well yet but is improving. I may have to anesthetize her and explore the sigmoid flexure with a long speculum, when I expect to find an advanced stage of inflammation of her sigmoid, and perhaps some ulcerations.

Case 5. A married lady, aged 28, mother of one child, consulted me last winter for what she called indigestion, pain and tenderness over the left side, and distension of bowels from gas. She had a mucopurulent discharge, mixed with blood from bowels, with at times round casts an inch or more long, not unlike the false membrane of croupous laryngitis. My diagnosis was inflammation of the sigmoid flexure, bordering on ulceration, with some narrowing of the bowel near the entrance to the rectum. I recommended an exploration with Kelley's speculum and later the use of a Wales bougie, as in case 4. My advice was not taken and later on a specialist was imported, who in my presence, dilated and scissored her rectum; dilated, curetted and packed her uterus; dilated and removed a circular ring from her urethra; dehooded her clitoris and removed both her ovaries, all at one time in the order I have mentioned. I was not able to see anything specially wrong with her ovaries, but as we look through differently colored glasses, perhaps I was not the best judge. She recovered from the effects of the multiple operations, but was

not benefited by them. In fact, her condition was made worse by the mutilations which only added to her sufferings. A few weeks later, there being some induration in her pelvis, her specialist decided to remove her uterus which he did through the vagina. After he was through he remarked to me that this ought to benefit the patient, when I told him that I had no confidence in it, for the trouble was in her sigmoid. He then passed a good-sized probe up into her sigmoid with considerable difficulty. She recovered from this second operation, and since having her sigmoid opened up, she has been somewhat better, but is not well, for on the 8th of this month I saw her in a very severe attack of indigestion, with the same trouble in her left side. I doubt whether she will ever get well until her sigmoid is opened up, cleansed and treated.

Case 6, that of a married lady, aged 27 years, mother of two children, a very intelligent lady consulted me three months ago for what she called dysentery. Upon closer inquiry I learned that frequently through the day she would pass large quantities of mucus mixed with blood and pus. She had some tenderness over the sigmoid and pain in her back; was growing thinner in flesh and had a bad color. Trouble of her left ovary had been diagnosed by another physician, and her uterus had frequently been treated locally for the pain in her back. I was

not able to find anything wrong with her uterus or ovaries, and her rectum looked fairly well, but when I passed a Wales bougie, as the point of it entered her sigmoid, it gave her a sharp pain in her back. My diagnosis was, advanced stage of inflammation of her sigmoid, bordering on ulceration. She gave the history of having been of decidedly constipated habit. My treatment consisted in *cascara sagrada*, to regulate her bowels; hot water enemas, to wash out her sigmoid, and fluid hydrastis, drams 2, water, oz. 2, mixed, which I threw up into her sigmoid with a Wales bougie No. 5, every other day, after the enema passed off. This she retained from six to eight hours. She rapidly improved and is today comparatively well. She has had no pain in her back and does not pass any more mucus, blood or pus.

I have purposely avoided malignant diseases, torsion, etc., of the sigmoid, because they are not usually hard to diagnose, and have given you the ones that are likely to be overlooked and treated for some other disease, which is more likely to be the case in the female, for when they have pain and distress in the pelvic region it is usually referred to the uterus or ovaries; and there is no doubt that many an ovary and uterus has been sacrificed when the pathologic condition was all in the sigmoid flexure.—*Cleveland Journal of Medicine*, Oct., 1896.

## BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to DR. C. G. CUMSTON, 871  
Beacon St., Boston.)

MOTHER, BABY, AND NURSERY. A  
MANUEL FOR MOTHERS. By  
GENEVIEVE TUCKER, M.D. Bos-  
ton. Roberts Brothers. 1896.

The object of this volume is to furnish a practical summary of the infant's hygiene and physical development, and as such it will appeal to the average physician strongly. People seem to have so little common sense about when to have children, how to behave during pregnancy, how to feed and care for babies. We have not the time to instruct fully or to explain when we do give orders.

We believe this little volume is one which we can commend to any newly married couple, before and after child-birth has entered into their lives, and is, moreover, well worth the reading of every physician. It contains an abundance of practical points about which physicians are continually asked and which they too often refer to the nurse whose abilities are not always of the highest character. Doubtless you will not agree with all the ideas advanced, but we believe that on the whole you will agree with us that it is an excellent "Manual for Mothers."

LES TUMEURS CEREBRALES. By  
DR. MAURICE AUVRAY. Paris.  
1896. J. B. Bailliere et Fils.  
Publishers.

This work on tumors of the brain is a very good treatise on the subject. Although not complete in every respect, the author has collected a

large amount of valuable material. Besides the pathology, diagnosis and treatment of these tumors, a large number of cases have been collected from the literature, rendering the work most excellent for reference.

TRAITE DE MEDICINE ET DE THERAPEUTIQUE. Published under the direction of Drs. P. BROUARDEL, A. GILBERT and J. GIRODE. Vols. I, II and III. Paris, 1895, 1896, 1897. J. B. Bailliere et Fils, Publishers.

The first three volumes of this very important treatise on medicine have appeared. We cannot say too much in praise of this very valuable and complete work, which will be composed in all of ten volumes. The first and second volumes treat of the microbic diseases, and the articles are written by men highly competent for their work. The third volume treats of diseases produced by parasites, intoxications and diseases of the skin. A criticism on such a work is useless: suffice it to say that the following collaborators will write for the first six volumes. Auché, Balzer, Barbe, Boinet, Bouloche, Brouardel, Chauffard, Courmont, De Gennes, Deschamps, Dupré, Galliard, Gaucher, Gilbert, Girode, Gombault, Graucher, Guinon, Hallopeau, Hanot, Hayem, Hudelo, Hutinel, Jacquet, Laboulbène, Lancereaux, Landouzy, Laveran, Legroux, Letulle, Lion, Marfin, Menetrier, Merklen, Mosny, Netter, Parmentier, Richardiere, Roger, Roque Siredey, Strauss, Surmont, Teissier Thoinot, Vaillard, Widai and Wurtz



We cannot too highly commend this admirable work to those who read French, as it will be one of the most important contributions to medical literature that has as yet appeared.

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L'ANTISEPSIE DANS LA PRATIQUE DE LA CHIRURGIE JOURNALIERE. By Prof. E. NICAISE, Paris, 1896. J. B. Balliere et Fils, Publishers.

This is a comprehensive little manual on the subject of antiseptics as it should be carried out, and will be found most useful. The author gives details, descriptions of the sterilizations of instruments, as well as the preparation of operating rooms and the manner of dressing wounds and traumatism. The various antiseptics commonly in use are thoroughly discussed.

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FORMULAIRE DE GYNECOLOGIE. By Dr. R. VAUCAIRE, Paris, 1895. A. Maloine, Publishers.

This is a most practical work of some four hundred pages, giving a detailed description of the medical treatment of diseases peculiar to women. A large number of formulæ are scattered throughout the book. It can be highly recommended to the general practitioner, as well as to the specialist.

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MANUEL THEORIQUE ET PRATIQUE D'ACCOUCHEMENTS. By Dr. A. POZZI, Paris, 1897. Felix Alcan, Publisher.

Dr. Pozzi, of Reims, the author of this little book, has intended his book for the use of practitioners and students. It is thoroughly practical and well expresses the views of the French obstetrical school in a concise manner. It fully covers its ground and includes the symptomatology and general physiology of labor, a practical and clinical study of pregnancy and labor,

as well as a critical study of the various presentations, extra-uterine pregnancy, obstetrical operations, the physiology of the post partum, the care of the child, as well as the pathology of the newly born.

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SYSTEM OF SURGERY. Edited by FREDERICK S. DENNIS, M. D. Vol. IV. Philadelphia, 1896. Lea Brothers & Co., Publishers.

The fourth and last volume of this very excellent treatise on surgery deals with tumors, hernia, diseases of the alimentary canal and abdomen, as well as those pertaining to the female genitals and breast. We have no particular comment to offer, excepting to say in closing in mention of the last volume of this treatise, that it is in every way an honor to medical literature.

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TREATISE ON OBSTETRICS. By EDWARD P. DAVIS, A. M., M. D., &c. Philadelphia, 1896. Lea Brothers & Co., Publishers.

We have long been waiting the appearance of Dr. Davis' Treatise, and we are most highly pleased with it. The subject of obstetrics is thoroughly discussed, the plates and illustrations are good and well chosen. The distinguished author is a sufficient guaranty of the quality of the book, which we consider as one of the best manuals we have yet seen.

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TEXT-BOOK OF MATERIA MEDICA THERAPEUTICS AND PHARMACOLOGY. By GEORGE FRANK BUTLER, Ph.D., M. D., &c. Philadelphia, 1896. W. B. Saunders, Publisher. Price \$4 net.

We are disappointed in this rather voluminous text-book on Therapeutics. A large number of errors have crept into its pages, and some of the theories therein set forth, as well as

some of the statements, are rather in disaccord with the generally accepted ideas. There are very few books that are perfect, but to recommend the one under consideration as a text-book for students, we should hardly dare to do so. The work is certainly complete and treats of a large amount of matter, and there is also much in it that is good.

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AN AMERICAN TEXT-BOOK OF PHYSIOLOGY. Edited by WILLIAM H. HOWELL. Ph.D., M.D., Professor of Physiology in the John Hopkins University. Philadelphia, 1896. W. B. Saunders, Publisher. Price, cloth, \$6. For sale by subscription only.

This is the first treatise on Physiology in the English language which has been published within the last decade, which really may be called an up-to-date treatise, and we are very glad to see it. The articles are all excellent, and the list of contributors which we here append, are a sufficient guaranty of the excellency of the work. Henry P. Bowditch, M. D., John G. Curtis, M. D., Henry H. Donaldson, Ph.D., Wm. H. Howell, Ph.D., M.D., Frederick S. Lee, Ph. D., Warren P. Lombard, M. D., Graham Lusk, Ph.D., W. T. Porter, M.D., Edward T. Reichert, M. D., and Henry Sewell, Ph. D., M. D.

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PRACTICAL POINTS IN NURSING. By EMILY A. M. STONEY, Philadelphia, 1896. W. B. Saunders, Publisher. Price \$1.75, net.

A practical little work, which may be of service to the young physician, but we think it more to be recommended to the trained nurse, who will find in its pages much that will be valuable to her.

The importance of THE LIVING AGE to every American reader, as the freshest and best compilation of gleanings from the field of British periodical literature has been long recognized. Founded by E. Littell in 1844, it has never ceased to occupy a prominent place among the foremost magazines of the day. In pursuance of the same general plan adopted by its founder, and to give the best the *world* can offer, the publishers have arranged for the introduction of certain "New Features" so widening its scope as to embrace translations of noteworthy articles from the leading publications of France, Germany, Spain, Italy and other continental countries, many of which contain matter of great interest and value to the American reader, yet which, for obvious reasons, are absolutely beyond his reach but for the timely help of this delightful medium. In addition a monthly supplement will be given, containing three departments devoted to American literature.

Its prospectus, printed in another column, more fully describes these new features, the first of which appears in a November issue.

A year ago the price was reduced from \$8.00 to \$6.00 a year. This reduction brings the Magazine within the reach of a much wider class, and certainly at this price, with these improvements, it is at once the cheapest and the best literary weekly in existence. In no other way can its equivalent be obtained for less than many times its cost. Reduced clubbing rates with other periodicals offer still greater inducements, and to new subscribers remitting now for the year 1897, the intervening numbers of 1896 will be sent gratis. The Living Age Co., Boston, are the publishers.

# DEPARTMENT OF PÆDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

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## EDITORIAL.

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### HYGIENE - DIET.

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Far too little attention to these subjects is paid in our medical training. A course of lectures on Hygiene and such part of the course on Physiology as is devoted to digestion are practically all the instruction the student gets. To be sure hints are dropped here and there by the clinical professors but the average man fails to grasp their importance. After he has seen and cared for a few scores or hundreds of patients, and learns how each one presents certain peculiarities of his own, he understands more readily the importance of knowing the great primary laws of health. It is therefore with pleasure that we present this month the article of Mrs. Sarah Tyson Rorer. Trained and educated in medical lines she has devoted herself to the study of hygiene and dietetics and as an expert in this line is well known throughout the country.

We accept without much thought the axiom "Cleanliness is next to Godliness." But few, indeed, are the people who remember what cleanliness means. A warm bath once a week with a quick daily sponging of more or less—usually less—of the surface of the body is a high average. The poorer classes claim that they can not do more. It is for us as thoughtful educated physicians to teach them and show them that they *can* do more. Only as we realize the necessity of keeping the pores open and free, of giving the terminal blood vessels and nerve filaments a daily vigorous stimulation, and removing from the surface of the skin, not only what has been put on it from without, but what it is itself continually casting off, can we arouse our patients with enthusiasm. Nor is the skin the only part that needs cleanliness. Mouth and teeth, throat and nose, and ears all need attention daily or oftener. This care should be thorough, but never violent, and no part of it should be neglected. Mons Veneris, vulva, pubes, scrotum and prepuce too need special cleansing. Many a young man and woman would be spared the evils of masturbation, excessive venery, nocturnal incontinence, etc., with all their attendant train of complications, if he or she had been trained in childhood to habits of absolute cleanliness of these parts. False modesty and over caution on the part of parents and physicians lest the

child's mind be too easily directed to sexual matters are responsible for much subsequent sin and suffering. The child needs simple, clear, and decided instruction in these matters and watchful care till the habits are well established. Such habits of cleanliness once made a part of daily life become among the firmest in the life of man or woman.

But perfect health does not necessarily follow cleanliness even in all its details. Other habits are needed and should be started in early life. Erect, springy free carriage with its almost necessary deep and full inspiration must be learned. Sitting rooms and sleeping rooms must have plenty of fresh air and sunlight. School rooms, of course, need attention, and are far more apt to get it than are those other rooms where the child spends such a large share of his life. Habits of regular, sound, uninterrupted sleep are another element in health. The infant sleeps the greater part of the time. But as the child grows older, he gradually is allowed to sit up later. This, besides involving an extra exertion and expenditure of energy, too often also means over sleeping in the morning and consequent hasty morning toilet. Children as they get on in school life and into their teens need an abundance of sleep which should not be cut short for any reason, social or otherwise. Probably there is not so much need of advice from the physician about the dress of the children as about their other habits, nor is it likely that advice will be as willingly received by parents. Clothing should secure a comfortable degree of warmth to all parts of the body and secure protection against sudden changes.

But the matter of diet is one which we are consulted about from the earliest days or hours of the child's life. Every physician has his own experiences in unusual methods of feeding. Not always is the outcome so fortunate as in the case of the family of an Irishman, living, as you might guess, not far from Boston. To his astonished family physician he said "Yis, the children have always had their baked beans with the rest of us every Saturday night, from the time they were six months old." Eight children have safely passed through infancy on such a diet. Rich and poor have not the same difficulties but all alike suffer from ignorance of the simplest rules. Manifestly the diet of the children must vary somewhat with circumstances. Each physician must decide for himself the best plan for *each* case. We trust that the suggestions of Mrs. Rorer's article may be helpful in this to our subscribers.



## ORIGINAL COMMUNICATIONS.

RECENT PROGRESS IN THE DIAGNOSIS AND TREATMENT OF  
DIPHTHERIA.\*

BY WILLIAM B. SMALL, M.D.

It is with pride that we, as physicians, can point to the recent rapid gains in the various departments of medicine and surgery; and we can heartily congratulate ourselves that we are members of a profession whose work is characterized by steady and rapid improvement.

Progress in therapeutics and medicine comes about in two ways; by brilliant discoveries; and by slow, but often more permanent, advances which, because of their conservative character, fill us with confidence in their reliability.

My paper today deals with the recent progress made in one department of medicine; a progress that partakes of the brilliancy of a discovery for it differs widely from the modern methods of any system of therapeutics, and yet, I believe, from the theories and scientific reasoning which gave rise to its use, really belongs among the more permanent advances and has filled us with confidence in its reliability. In fact, the modern diagnosis and treatment of diphtheria is a practical result of scientific deduction.

At the Wiesbaden Medical Congress in 1883, Klebs announced his discovery of a special bacillus in the false membranes of diphtheria.

Loeffler in 1884 reported the isolation and culture of the bacillus, and the production of the false membrane in pigeons, fowls and rabbits.

Roux and Yersin in 1888 to 1894 made further reports of studies of this bacillus; and from these studies Roux dispelled the doubts which had been raised by Loeffler as to the importance of his own and Klebs discoveries and established the fact that the "Klebs-Loeffler bacillus is the cause of diphtheria."

From further study he proved that "though the bacillus itself is the cause of diphtheria, the constitutional effects of diphtheria result from the entrance into the blood, not of the bacillus but of a toxic substance produced by it."

The next step was made by Behring. Led by certain studies of Nuttall and Pasteur in 1888, he introduced small and repeated doses of the diphtheria poison into the blood of animals. He thus rendered them immune to the disease. He found this immunity due to the presence of

\* Read before the Maine Medical Association at Portland, Me., June 4, 1896.

a certain substance (antitoxin) in the blood serum. This immunized blood serum was found to be destructive to cultures of the diphtheria bacillus. His results on patients were sufficiently encouraging to induce others to try the treatment. His first report was made in May, 1893, and included thirty cases with twenty-four recoveries.

Ehrlich, Kossel and Wasserman in April, 1894, reported 220 cases in children. Sixty-seven of these were tracheotomy cases with a mortality of 44.9 per cent., but of the remaining 153 the mortality was only 23.6 per cent. In these cases but one injection was given each child and in one half the fatal cases the disease was so far advanced as to make recovery out of the question.

The most important fact deduced from these cases was that "the treatment is successful in proportion as it is commenced early in the disease." Of six treated the first day, none died; of 66 treated the second day, but two died; while in cases in which treatment did not begin till the third day, the mortality rose to 53.5 per cent.

The first preparation of antitoxin was from the blood of goats and was considerably stronger than that now obtained from horses. These animals are today chosen for the production of the serum as they tolerate the immunizing process well and readily yield a large amount of serum from the jugular veins. The process is the same in any animal.

The pure toxin is injected beneath

the skin, the dose being gradually increased till 20 or 30 cubic centimetres are injected two or three times a week. Each injection produces a little local swelling and a rise of temperature for a day or two, but does not seem to affect the animal's general health. After a time all symptoms gradually disappear even under the use of much stronger doses of the antitoxin, and in about three months the animals are entirely unaffected by it.

There are two forms of the serum: a liquid and its solid extract. The latter is supplied in fine golden scales in a sealed tube. These scales are soluble in twice their volume of water and one gramme of the powder is said to be equivalent to ten cubic centimetres of the serum. There are many objectionable features in this preparation and it is not in general use.

There are many sources of the more common liquid form, both American and foreign. Those found to be the most reliable by the physicians of our State are; Sehering's (Aronson's), a German preparation; Pasteur Anthrax Company's (Roux), a French preparation; and Gibier's antitoxin, made in New York.

Aronson claims that his antitoxin contains the antitoxic principle isolated from inert and noxious albumenoids of the serum: it is said to keep 12 months; its antiseptic preservative is tricresol, instead of carbolic acid as in other preparations. Its dose is also smaller.

There is as yet no common standard

of strength of the various manufactures, and the dose varies with each preparation.

The quantity of antitoxin to be injected at a dose is so large that few parts of the body have skin loose enough to receive it. Beneath the nipple is too sensitive, and the lateral aspect of the abdomen has large veins crossing it. The interscapular region is the safest, though awkward to reach and painful to lie on in bed after the injection. A place at once safe and convenient is the buttock and the near-by outer surface of the thigh.

Great care should be taken not to inject the antitoxin directly into the circulation; nor to inject air; and we must bear in mind that antitoxin is coagulated by all substances which coagulate serum albumen; alcohol, carbolic acid, bichloride of Mercury,—all being ordinary antiseptics. The presence of these in the syringe may produce small coagula which may be injected into the tissues and cause trouble.

There is one point in this treatment that should be most prominently brought out: that is, the importance of promptness in its use. Behring has repeatedly urged that this remedy be used as early as possible. This means that in general practice, the immediate diagnosis and treatment are not to rest on a bacteriological examination, but on the clinical history and condition of the patient. From careful study of this matter, I believe that in most localities in this State (for the lack of laboratory facili-

ties and complete equipments for the purpose) the physician who delays the injection until after the completion of a bacterial examination for the purpose of diagnosis is open to criticism.

There are difficulties too, in the way of a positive diagnosis, even in a laboratory, as well as from a clinician's standpoint. From a diagnostic view, Klein has divided all cases into three classes:—

His first class includes cases in which “the superficial layers of the false membranes contain large numbers, occasionally in almost pure culture, of one and the same species of bacilli, aggregated in larger and smaller masses, separate, but more often grouped together. These are the Klebs-Loeffler bacilli. Cultures made from such false membrane yield an almost pure crop of the characteristic colonies of the diphtheria bacilli.”

This first class of cases is typical and easily diagnosed in the laboratory and at the bedside.

“A second group comprises cases which in clinical and epidemiological respects are undoubted diphtheria, which can be traced to an antecedent case of diphtheria, and in which the membrane or muco-purulent secretions contain a very variable number of the diphtheria bacilli; but they contain at the same time a very large number of other microbes, which on cultivation prove to be chiefly cocci, staphylococcus aureus and staphylococcus albus, small streptococci, and chains of larger cocci. In these

cases, the number of diphtheria bacilli may be sufficiently large to be identified by their shape and grouping, and to be easily recovered by culture, or they may be so limited as to be only identified by culture: but even then the chances of identification are not too great if the bacilli are practically swamped by cocci, notably streptococci. It is such cases that have given rise to the opinion occasionally expressed that in some diphtheria cases no diphtheria bacilli have been found."

This is a class more easily diagnosed by the clinician than in the laboratory.

"The third group of cases comprises those in which no obvious antecedent connection can be established, and in which the clinical history does not enable one to make a diagnosis. It is obvious that it is precisely in these cases that correct diagnosis is of the utmost importance. Now, if from the secretion of the fauces (in cases of faucial inflammation, follicular tonsillitis) or from the nose (in cases of rhinitis) diphtheria bacilli can be isolated, then the case must be pronounced to be one of diphtheria."

It is evident that the positive diagnoses of this class is possible only to the laboratory worker.

The injection of antitoxin to prevent the contraction of diphtheria by persons exposed to the infection was proposed by Roux, and has been carried out in many hospitals. Biggs reports its use for this purpose as very successful and no unfavorable symptoms except rashes. Moizard also records excellent prophylactic effects.

There have been several cases of this preventive use where disagreeable results and even death have occurred: the action of the antitoxin seeming to differ in this respect in well persons and those affected with diphtheria.

The immunizing power, according to Heubner, is not of long duration. Biggs puts it at thirty days. Others from five to six weeks.

The unfavorable results of the antitoxin treatment will be fully set forth in the next paper on the program and need not be touched upon by me.

It will be interesting to record here the results so far as have been reported on the various points of interest in the ordinary case of diphtheria.

That the injection of antitoxin promoted the separation and limited the spread of the false membrane, was one of the very earliest observed results of the treatment. In some cases the loosening of the membrane and the rapidity of its separation are quite remarkable and can be observed only a few hours after beginning the treatment. There is scarcely any difference of opinion on this point, but some cases are reported where the membranes have continued to spread after the antitoxin treatment has been commenced. This spread is chiefly upward in the pharynx and the cases ultimately recover, the treatment being continued. It is generally agreed that the spread of the membrane into the larynx from the surrounding parts is limited, and that this fact and the early separation of the membrane when its primary seat is in the larynx, are the strongest



arguments in favor of the use of antitoxin.

Many writers, prominent among whom is Baginsky, lay great weight on the improvement of the general condition of the patient. He says: "almost without exception a very extraordinary improvement in the general condition is observed, not on the first, but on the second and third day after the injection." Others, as Woodhead, say the disease runs a milder course; Heubner, that it is shortened.

Authorities differ as to the results on the temperature. Roux claims that the administration of antitoxin is followed by a reduction in the temperature. Heubner and others agree with this statement. Many others, among whom are Wiederhofer, Kassowitz and Lennox Brown, report to the contrary effect. But the temperature of diphtheria is very variable, ranging from high to subnormal. Complications also vary this factor to a large extent, and on these accounts it is hard to determine the exact effect of the antitoxin. In the few cases in my own experience, where it was used early, the temperature has been lowered. In one septic case (late use) the temperature steadily rose till death, despite the antitoxin.

Reports as to the effects on the pulse and circulation are so extremely at variance that I have been able to draw no conclusion of value: but Dr. John S. Billings, Jr., in a late article, concludes that "the antitoxin treatment of diphtheria has no deleterious effects on the blood corpuscles. On

the contrary, it seems to prevent degenerative changes which would otherwise be brought about."

The general weight of opinion in regard to effects on the kidneys is that true nephritis is lessened, while some record more frequent transient albumenuria.

Observations on the effect of antitoxin on the statistics of paralysis are equally contradictory; but a few days ago, Dr. Henry W. Berg, one of the attending physicians at the Willard Parker Hospital for Contagious Diseases, made the statement that since the introduction of the antitoxin treatment of diphtheria in the institution, not only had the proportion of deaths from the disease been greatly diminished, but the number of cases of post-diphtheretic paralysis in those who recovered has been far fewer than formerly. It is evident, in the face of so many complications, and with so few records of exact observations of the influence of the diphtheria poison on the individual organs before the use of antitoxin, that much more careful study must be done in this respect, before we can arrive at any definite decisions of real value.

Enormous masses of figures have been published in the past year to show the results of the treatment by antitoxin; but there are many considerations which tend greatly to limit the value of deductions from any grand totals of numbers of cases recovered, and numbers of cases which died under this treatment. I prefer to put before you a few individual conclusions, from the personal obser-

vations of those who were familiar with the course of diphtheria before antitoxin was introduced and with the results of previous methods of treatment.

According to Ranke, the mortality is reduced one half by antitoxin as compared with his previous best years, and two thirds as compared with unfavorable years. Baginsky calculated that the mortality among his patients was reduced from 41 to 15.6 per cent., and Herman Biggs, of New York, that the reduction was from 40 to 16 per cent. in that city. Moizard in 231 cases, had a mortality of only 14 per cent. Welch has collected from various sources 7166 cases with a mortality of only 17.3 per cent.

Reports from its use in our own State are very favorable, and the results are much more brilliant than those from any other treatment of the disease.

From the reports in the various Journals in the past two years, from the statements of the profession in Maine, and from my personal experience, I am able to draw the following conclusions: —

Behring's antitoxin has now been on trial for more than two years over the civilized world, and, after allowing all that is possible for exaggeration and error, the fact remains that his discovery is one of the greatest of modern times.

Antitoxin is a curative agent far more efficacious in diphtheria than any remedy heretofore employed. It also possesses some degree of immunizing power.

A marked improvement in both the local and general symptoms of diphtheria is noticeable within 24 to 48 hours after the injection of the serum.

Antitoxin has a decided influence in preventing the spread of the false membranes over the larynx and trachea.

The earlier in the course of the disease the serum is employed, the more favorable are the results.

The frequency of albuminuria and post-diphtheretic paralysis appears to be rather less than before the introduction of the serum therapy.

The prevention and cure of laryngeal diphtheria without intubation or tracheotomy, and the shortening of the period for wearing the tube in instances demanding such interference, are among the most striking and convincing results of this treatment.

Antitoxin may produce certain untoward symptoms, cutaneous rashes, joint affections, and enlargement of glands, but these do not appear serious in their nature, nor attended with danger to life.

It has also produced, in rare cases, death; but I believe that improvements in the method of preparing the serum, and more definite knowledge as to the manner of its employment will remove these unfavorable results and that we can join in the hope expressed by Dr. Caille, "that we may by the timely use of antitoxin accomplish all that Behring claims in the following words: "I am now definitely of the opinion that under suitable treatment with my remedy the mortality from diphtheria may be reduced to less than 5 per cent.

LEWISTON, MAINE."

## CARE OF CHILDREN.\*

BY MRS. SARAH TYSON RORER.

*Principal of Philadelphia School for Cooking.*

Of the total number of deaths, especially in hot weather, according to our records, one third are children under one year of age. The next great period of mortality is at the seventh year; the next between twelve and fifteen.

The question always comes to one's mind, is this mortality a necessary evil? We are inclined to say, "no". A careful examination will prove that the diseases from which these children die arises from preventable causes and in nine out of ten cases from food or care.

Any method or device to impress this fact upon the minds of mothers is a work well worthy of a philanthropist.

As soon as an infant is born he is dosed with all sorts of unnatural foods. Nature intended that the child should be quieted at once by the mother's breast. Man too frequently interferes and shakes the foundation of health by giving sugar and water, frequently paregoric or worse still gin and water. This child may possibly have been born under favorable conditions and probably had inherited a "good constitution, but this constitution was shattered at the beginning. The child

begins to fret and worry and then comes the feeding. Its little stomach fortunately is elastic. Who knows what might happen if it were not? The child in pain frets. Instead of being quietly relieved it is again fed and this feeding keeps on month after month until the poor thing feels that life is really a burden. The next cry is that of teething and this is nonsensical. The cutting of teeth is an operation of nature and under nature's laws is easily done. In an artificial life of course it is troublesome. Bathe and feed a child regularly, clothe loosely and comfortably, do not nurse, maw or trot it, and the teeth will come through almost unnoticed.

Let us study for a moment the digestion of the infant. We find that until the first teeth are cut there are really no secretions in the mouth for the primary digestion of starchy foods, such as pap, potatoes, gruels and bread foods. The latter is especially bad on account of the yeast. Any violation of nature's laws will upset the stomach and when a stomach is once out of order great mischief is sure to follow. One half, yes, two thirds of the trouble is over come when the mother can, and will, nurse her baby. Careful examination proves that the highest

\*Read at the Home Congress, Boston, Oct., 1896.

mortality is amongst the children brought up "by hand". This shows at once, and the cemeteries confirm it, that poor substitutes for nature's food have been selected. Cow's milk may be changed so that it will give a fair substitute for the mother's milk. We can readily understand that milk conveyed from different points to the city, then dipped from can to can, carted through the streets, perhaps partially uncovered, is not fit food for infants. Nor is milk from a single cow better or even as good as that taken from the general herd. A mother should make a personal inspection of the dairy from which she takes the milk for her infant. Have the cows milk selected as soon as it arrives in the morning, mix one pint of pure water with one pint of milk, then add four tablespoonfuls (2 oz.) of pure cream, two level teaspoonfuls of milk sugar. Pour this mixture into clean, sweet, four ounce bottles, stop with a cotton plug and stand at once in a sterilizer cover, allowing the water to boil for about five minutes. The better way is to put a thermometer in one bottle, watch it carefully and also the time. As soon as the thermometer registers 165° Fahr., the Pasteurized point, mark the time. The next morning you may sterilize it so many minutes, the idea being to heat it to a given point that will destroy or check the unfriendly bacteria, allowing the natural conditions of the milk to be unchanged as it is more easily digested than sterilized milk. Do not

remove the cotton plugs until you put on the nursing nipple which should be of black rubber containing two holes and this nipple should be scrupulously clean. If the child is constipated add more cream. If the constipation still increases add to the pint of milk a few drops of rennet. Allow it to stand for a moment until the milk cools, then strain. To this whey add half a pint of water and the white of one egg, shake until thoroughly blended, add three ounces of cream and two teaspoons of sugar of milk. I have used this mixture for a number of years with perfect success. If the child is healthy the amount of cream may be slightly increased in winter and diminished in summer. Sugar must be watched carefully. It makes a fat baby—soft fat—but little staying qualities and when the child is weaned or the bottle taken away, the fat suddenly disappears. This seems to be the case where large quantities of cane sugar is used for sweetening. The fat from cream is more staying, firm, and elastic. Until the child is two months old four ounces is quite sufficient at a feeding but gradually increase the quantity as the child grows older. Never at any time give it sufficient to crowd the stomach.

Now that we have spoken of the food of the child let us turn for a moment to the training of the infant. First beginning to instruct it at the very early hours of its life. Teach it to eat and sleep regularly. Take it from the bed every morning at



the same hour, bathe carefully and thoroughly in warm salt water and dry with a soft towel. If affected with heat, dust it lightly with rice flour and put next to the body a gauze flannel long enough to cover the bowels. Over this put a thin flannel shirt with a linen or muslin body, then a slip, simple, plain, high neck, long sleeves, and a comfortable short skirt. Zephyr socks should cover the feet and a bib to protect the front of the slip. Now feed: if not from the breast, have the bottle warmed to 100° Fahr., then remove the cotton plug and put the nipple on firmly. Hold the child in a semi-erect position as when nursing it naturally. I noticed the other day a patent arrangement for holding the bottle in such a position that the child, on its back might drain every drop to the last. How sensible it would be if some man, in his desire to make money, would patent a thing more to nature. Why not patent a rack for holding the child rather than a bottle, so that it might be in a proper position to drain every drop. Such things are amusing and while I do not for a moment think that the manufacturer intended to kill the child it amounts to the same.

As soon as the infant has finished the meal, place it on the mattress in the crib, cover lightly and leave alone to take a good long nap. Do not under any circumstances feed it more than every two hours at first, then every three hours, after the fifth month every four. Fol-

low these common-sense directions and the tendency of the baby will be to eat, sleep and be happy.

The days of childhood require quite as much care as those of infancy. If the infant has not been well trained, the passion of childhood will overpower the instinct, and reason has not yet been introduced. A small child four or five years old should have four meals a day. Meat at one, under certain circumstances two. They should have no stimulants whatever, not even weak tea or coffee. Leave these drugs to the aged who possibly may need them. Nor do children need warm drinks in the morning, if they have been properly bathed and rubbed. For breakfast have one morning broiled sweetbreads, another broiled chicken, then fish, then soft boiled eggs. For their dinner, which may be at twelve or one o'clock, let them have a red meat, either beef or mutton, broiled, boiled or roasted. Twice a week baked pudding, three days rice boiled carefully in water, the remaining two days maccaroni carefully boiled and served with cream sauce. They may have also a little of any green vegetable, simply and well cooked. If the dessert is to follow, have rice pudding or a little whipped cream or a little milk gelatine. Pastries of all kinds must be avoided also cakes and puddings. Then at five o'clock give them a supper composed either of whole wheat bread and milk or a well cooked mush and milk. Between

breakfast and dinner, if hungry, allow them to have some easily digested fruit; a good apple for instance or a few grapes. For their night meal once in a while they might have whole wheat bread and cup custard, or they might have whole wheat bread and a bowl of broth. Whatever it is, it must be simple. Baked apples may be given at the close of dinner or they may be given for breakfast and, besides their little bit of relish for breakfast, they may have a bowl of well cooked wheat granule or any of the wheat germs in proportion. Let me impress upon you that the food cannot be dispensed to each and every child with the same accuracy that you would put up a pharmaceutical prescription. Their must be some allowance made for children living in the country as compared with those closely housed in a warm nursery. Too many mothers in their desire to be very accurate work out this principle of measurement regardless of the child. Under such circumstances a child may be or may not be over-fed and great harm may thus arise from want of thought.

When the child takes his seat at the table do not discuss the food put before him. See that the food is well cooked, give it to him and talk at once upon another subject and one that is interesting to him. One can tell frequently the kind of food the mother likes by simply watching the child eat.

Not along ago a mother came to

me for a diet list for her child seven years old. The child was anæmic and altogether in a wretched condition. Her physician sent a note saying "recommend fatty foods if you can." So after talking with the mother for a little while, I suggested that the child must have twice a day at least a few drops of pure olive oil. She answered at once "oh, we cannot any of us take oil, nor can we eat fatty foods." Upon more careful questioning I found that she had always trimmed the fat carefully from the meat given to this child, from an early date. Naturally the child felt that that food was not a proper food. So from training and constant talking the child grew to dislike all fatty foods. It was not an innate idiosyncrasy but simply the result of training. The best thing of course to do was to give this child oil by absorption; so I recommended that each night before the child was put to bed she should have a good rub, then an oil bath, and in a little while a wonderful change took place.

Again, the mother fixing breakfast for her child reaches for the sugar bowl and sprinkles on the sugar, thus teaching a child from its very earliest days to eat sugar on cereals, and then she tells you the child will not eat it without sugar and asks how she can correct the error. Impress upon the mind of every mother that her child is very plastic in her hands and as she trains it so it will grow through life. If we want a tree to become perfectly straight we simply tie it to

a straight pole. If we wish it to bend towards the ground we tie it in that position. Human beings are very like twigs; the twig must be started from its very foundation if you wish it to be perfect in the position you have chosen.

Moderate gymnastics seem necessary for both boys and girls especially between the ages of twelve and fifteen. The girls should be taught to wear loose clothing giving each muscle in the body a chance to expand and develop. At this age also when children are building the structure they require a larger quantity of food than the adult who has completed this building and simply needs sufficient food to repair the structure. But as the habits of gluttony are easily formed, watch this side of the question with great vigilance. Wine, beer, tea and coffee should be avoided at this age also. Nature has provided a bounty of pure cold water to dissolve the many particles in our food, to aid digestion and to wash out the excretory organs. Between the ages of twelve and fifteen also, unless the mother is very careful, they check the growth and bring about artificial sensations and unnatural living. This is especially true where wine is used. Sweets should also be avoided as well as rich pastries, candies and puddings. The meals should be sufficiently frequent to avoid hunger and should contain sufficient nitrogenous as well as carbonaceous foods. Night eating at this age is extremely bad as it frequently destroys the appetite for breakfast. The lunch

must be light, easily digested and nutritious. The following is suggested :— cream soup ; two soft boiled eggs ; chicken or beef sandwich with a half pint of milk and two roast potatoes. Then a glass of milk taken very slowly, whole wheat bread and milk. For breakfast a well cooked cereal, fruit, fish or chicken, glass of water and whole wheat bread. For the night meal, clear soup, a red meat, one starchy and one green vegetable, followed by a salad with French dressing, a small bit of cheese and a wafer. Simple desert such as cup custard, rice pudding, Charlotte Russe, or a very little lemon or orange jelly may follow. If a lunch is needed between any of the three meals I would recommend a supply of fruit. A growing boy or girl at this age may consume ten or fifteen apples a day and be all the better for it.

As a rule Americans eat too much and do not eat with any degree of judgment. The man sitting in a close, badly ventilated room, stooping over a desk, which necessarily tends to stop the circulation in the alimentary viscera, eats the same food and frequently in the same quantity as the man who in the open air stands erect and has all the conditions necessary for perfect combustion. The man who labors, either mentally or physically in the open air may and can digest three meals a day. A man sitting in a warm, badly ventilated room, to keep himself in perfect condition should digest but two comparatively simple meals. Then as we may

pass middle age to old age a simple diet is all that is necessary for perfect health. Why stimulate the old? There is really nothing to stimulate. Nature will take far better care of us than man, if we will only study nature's law's.

Gluttony is as much of a vice as any other form of intemperance and should be so considered. If many of our good Christian philanthropists while they are working for legislation to close the saloons would also ask that the pastry and confectionery shops around our public schools might be closed, or removed, they would be doing a double good. The practice of gorging these sweets by the school boys and girls lays the foundation not only of indigestion for years, and perhaps is a permanent evil, but also the foundation for habits of indulgence which are curses through the entire life. It is the duty of every school teacher to see that the children under her care do not follow these practices. Then if the mother would see that the boy had sufficient food containing the proper elements to fit the elements of his body the evil might be overcome.

Human beings are tough animals as is proven every day by the food they take and the drugs they swallow to relieve the distress created by the first. Dr. Fothergill in speaking of the public schools and the little attention paid to the art of living, remarked that they were admirable institutions for killing off the weak and ruining the middling.

Just a word in parting regarding the dabbling in doctoring and medicines. A mother or a guardian has no right whatever to prescribe even the simplest dose of medicine to a child unless she has studied medicine. It is common sense to suppose that a man or woman who has given four or five years to the careful study of this great science knows more about it and the use of medicines than a person who has never studied for a moment. More children are killed by home doctoring than perhaps any other cause. When the child is ill, consult a physician, allowing him to do the practising, and I only wish for his sake as well as for the community at large that he might drop his drugs and become a counsellor; but this change can never be brought about until the community are educated to it. Let us pay our physicians a yearly fee for keeping us well, healthy and happy. Under our present system we pay him only to keep us ill and then we too often forget to pay him after he has pulled us through a serious illness. In all the pharmacopœias there is not a single active medicine which has not the power to derange more or less the gastric digestion and for this reason we call it a medicine. It really is not a food. The family medicine chest should be condemned unless it is kept locked and the family physician carries the key.

1715 CHESTNUT ST., PHILADELPHIA.



## REVIEW OF PÆDIATRY.

### Chorea and Rheumatism.

Frederick Krauss, M.D., of Philadelphia, says: The relation between rheumatism and chorea is still a much disputed question. Many careful observers have concluded that there is a decided connection between these symptomatically diverse diseases. Others are convinced of the contrary.

Sir Dyce Duckworth believes chorea is simply another variety of rheumatism, in which the brain is affected, instead of the joints. He considers that the definition of Andrew Clarke—"rheumatism of the brain"—is very appropriate.

The choreic affection, he believes, is more common in girls, because the primary establishment of menstruation produces certain disturbances in the cerebral circulation that makes the brain a weak spot, which the rheumatic poisons, in certain persons, attack, producing the phenomena called chorea.

This theory becomes more tenable when we consider that both rheumatism and chorea are due to some systemic poison, the nature of which is not exactly known. In the one case, it acts upon the serous membranes of the joints, pleura, etc., while in the other the voluntary motor centers are apparently effected. The ventricles of the brain are serous cavities, lined by serous membranes (endothelium). The internal capsule, through which the voluntary motor fibers run, is in close proximity, especially at the knee, to the lateral ventricles, separated therefrom by the thin layers of nerve-cells, of the thalamus opticus, and the nucleus caudatus, from

which fibers run to join it (the internal capsule).

Osler states that in 554 cases, which he had analyzed, 15.5 per cent, had a rheumatic family history, and in 15.8 per cent. of the cases there was a history of articular swelling. The statistics of the Committee of Collective Investigation of the British Medical Association, in a study of 439 cases, show that joint affections were present in 26 per cent. of the cases of chorea. Steiner, on the other hand, in a collection of 252 cases, found only 1.5 per cent. in which rheumatism was present. Osler further asks, "Do these articular affections of chorea belong to true rheumatism? Are they not analogous to the joint troubles of scarlet fever, puerperal fever, and gonorrhea, which no one now regards as truly rheumatic."

In view of this diversity of opinion, it may not be considered superfluous to report the following case of acute articular rheumatism and chorea, the latter occurring after a relapse of the rheumatism. This case is also of interest on account of the extensive heart lesions, which were present as a further complication.

The chorea, occurring during the endocarditis, might be explained also by the embolic theory, though no other symptoms of embolism were present. Another feature is that both the rheumatism and chorea were at first only manifested upon the right side.

J. H., girl, aged sixteen years, was attacked on March 9, 1894, with acute pain and swelling in

right ankle and right wrist, and over the precordia. When seen by me next day, she was suffering from a severe attack of acute articular rheumatism, accompanied by the characteristic acid sweats. In addition, there were present mitral and aortic double murmurs and a pericarditic friction sound: marked dyspnea. On palpation over the precordia, the friction fremitus was plainly marked. Temperature  $102^{\circ}$ ; pulse full and short—110 per minute. The patient was immediately placed between blankets and kept absolutely quiet. Blisters the size of a silver dollar were applied over the precordia, giving much relief from the pain. Sodium salicylate was given internally in ten grain doses, repeated every two hours; milk diet. The patient immediately improved, the temperature on the fourth day being normal. No marked effusion could be outlined in the pericardium, though the friction murmur and fremitus had disappeared. The endocardial murmurs continued undiminished.

Fifth Day.—General condition very good. Was placed upon infusion of digitalis, potass. bicarb. and iodides.—*Medical Review.*

### A Case of Malnutrition in an Infant.

George M. Tuttle, M.D., St. Louis, read before the St. Louis Medical Society, May 9, 1896, the following: The subject of nutritive and digestive disorders in infants is one of such unfailing interest and supreme practical import, that the recital of the following case, together with a few generalizations drawn from its analysis, can not fail but be valuable.

The patient, a girl, two and one-half months old, was first seen by

me October 29, 1895.

FAMILY HISTORY.—Good.

PERSONAL HISTORY.—There has been no previous sickness of any kind. The baby was breast fed from birth, but the nursing had been of the most irregular kind as regards its intervals, the infant being fed on every possible provocation. The mother had a very copious flow of milk and seemed to consider this indicative of a necessity for stuffing on the part of her baby.

The result of the child's frequent demands and the mother's inexhaustible supply, had produced a

PRESENT CONDITION—of dyspeptic diarrhea.

The symptoms in evidence were green, foul-smelling, frequent stools, containing undigested food remnants, distended abdomen with colicky pains, marked irritability, crying, restlessness and sleeplessness. These symptoms had lasted two weeks, and the baby was said to have lost a good deal of flesh and strength. She also had some cough during this same period.

PHYSICAL EXAMINATION.—Showed a baby fairly well nourished and plump, particularly in her face, notwithstanding the history of loss of weight. The fontanelle was not depressed. The mucous membrane of the cheeks and tongue was studded with white patches of thrush. The throat was negative. The heart sounds were normal. The chests were clear of any adventitious sounds. The abdomen was full, but the skin over it somewhat wrinkled. The temperature was  $98.5^{\circ}$ . The general appearance of the baby was anæmic.

Treatment consisted in the regulation of the nursing to every two hours with absolute accuracy, the baby being kept awake so as to empty the breasts in twenty min-

utes. Crying in the meantime was to be controlled by warm water to suck from a bottle. This, with a few drops of dulute hydrochloric acid and essence of pepsin, given after nursing, soon regulated stomach and bowels, and controlled the diarrhea. The thrush was treated with local applications of glycerite of boro-glycerine, and soon disappeared.

November 5, the baby was seen again with a new trouble. The stools were normal and the thrush cured, but the cough still remained. The new development was a swelling, tender but not red, of the left parotid gland. This swelling was treated by applications of flannel wrung out in hot water, and in the course of a week or ten days an abscess, which never appeared near the skin surface, broke into the external meatus and discharged its contents there. The drainage being rather imperfect and the part being difficult to cleanse, the abscess took about three weeks to close, but finally healed completely and left the ear none the worse.

So far it was not surprising that the baby's nutrition did not improve, even with the seeming removal of all digestive disturbances. But after this, although no further external diseases developed, she kept emaciating and rapidly approaching a condition of marasmus. Her limbs consisted, seemingly, only of skin and bones, the fontanelle became depressed, and the skin of the abdomen could be pinched up and pulled far away from the subcutaneous tissues, with no tendency to return to its place. The cough, still persisting, made me suspect tuberculosis, but neither in the lungs nor elsewhere could any signs that even pointed to such a condition be found.

Dec. 7, when the baby was next

seen, in consideration of the above symptoms with the lack of any physical sign to account for them, it was decided to investigate the mother's milk. The baby still nursed well and regularly, she had no digestive disturbance, and the breasts still secreted freely. The milk on analysis showed a specific gravity of 1030, and only 1.5 per cent. of fat. With this almost normal specific gravity, but very low fat percentage, the proteids were probably increased in quantity. From this it was argued that we were probably dealing with a case of fat starvation, pure and simple, and the treatment was adapted to that diagnosis. The fat was given in the shape of cod liver oil, plain, gtt. x, t. i. d., to begin with. After a week, no rebellion coming from the stomach, this was increased to gtt. xx, t. i. d. and held there.

The improvement in her nutrition began almost immediately and has continued to the present. Unfortunately she was not weighed at this time, but on December 20, after a very perceptible increase in flesh she weighed 10 pounds. During each succeeding week she gained on an average eight ounces, until, at the present writing she weighs over 20 pounds. The limbs have filled out, the skin has lost its wrinkled inelastic quality, and the baby is good natured, sweet tempered and strong. *Medical Review July 25, 1896.*

#### Hygienic Prophylaxis of Ear Diseases.

Dr. Percy H. Fridenberg, of New York, makes numerous practical suggestions in a recent paper. Since the commonest path for aural infection is from the naso-pharynx through the eustachian tube, he urges care of the throat. A simple perfunctory brush-

ing of the teeth in the morning on rising and a so-called gargling with a few drops of a mouth wash are not enough. The most careful cleansing of the teeth should take place at night and again on rising and a less careful toilet of the mouth should follow each meal. If these simple hygienic measures are systematically and energetically applied, especially in childhood, we might hope for fewer complaints of foul breath, weak stomach, or decayed teeth; not only this, but the mucus membrane of the mouth and pharynx would become toned and strengthened against many infectious diseases. Lavage of the throat is so carelessly done as to be in most cases practically useless. A small amount, not a mouthful, of fresh cold water should be used. The chin is now raised and the fluid allowed to run slowly back by its gravity without any attempt at gargling. When the fluid reaches the lowest part of the pharynx, it causes a sudden, brisk, reflex contraction of the pharyngeal muscles, which, assisted by a forward inclination of the head, is amply sufficient to empty the contents of the mouth. This simple process may be repeated three or four times. By this method the lower portions of the throat are reached, and above all, the energetic spasmodic muscular action effectually dislodges all tough adherent mucus. Where there is a tendency to catarrh or sore throat, antiseptic solutions may with advantage be substituted for pure water.

Nasal or pharyngeal catarrh whether idiopathic or symptomatic of measles or scarlet fever, is frequently complicated by acute middle-ear disease. The disease brings with it the necessity of freeing the nasal cavity at frequent intervals, and the simply blowing of the nose, if violently or carelessly done, as is usually the case, may be a source of danger. It should be done as seldom as possible, as vio-

lent blowing only adds to the existing irritation and congestion. If this is not sufficient, the mucus must be made less tough and removed by an alkaline douche. Both nostrils should never be closed at once, and no hair-pin or similar utensil should be used. We must be on our guard in the case of infants and little children, and consider at all times the possibility of ear complications, where restless sleep, peevishness and crying might suggest intestinal parasites, colic, teething, or what not. Frequently a discharge from the ear is our first intimation of the real state of affairs.

The necessity of removing hypertrophic tonsils is self-evident as a prophylactic measure against ear-disease.

The majority of instruments used for cleaning the meatus—ear-spoons of metal, rubber, ivory or bone—are of doubtful utility or absolutely dangerous. Small sponges on holders are a source of infection, rather than of asepsis or cleansing. The ear-spoons, specially those of metal, easily cause abrasions of the epithelium and small erosions, which may become infected and result in furuncles or phlegmonous inflammation.

The use of an ear douche is but little better. The epithelium is soaked and macerated and when dry becomes a source of irritation. Oil, glycerine and other substances of similar nature are inappropriate on account of their tendency to become rancid. The most rational method of cleansing, which is perfectly thorough, may be accomplished by using a small tuft of absorbent cotton, not a large pledget, tightly wound about a blunt and smooth wooden toothpick, the end being left loose and fluffy. In case the cerumen is hard, the cotton may be lightly dipped in soap-water or moistened by a drop of ether. — *Medical News*, Aug. 8, 1896.



**German Measles.**

Dr. A. J. Bromlee after a careful study of 50 cases constituting an epidemic, affirms his belief in the existence in a disease, distinct from measles though resembling it in some respects. The epidemic was mild but there was abundant proof of the infectiousness and contagiousness of the disease, though in many cases only one child in a family was affected. This was in spite of the fact that nearly all lived in small houses of one or two rooms.

The rash, often without prodromata, or at most a little sickness at bed-time the night before, was often discerned in the morning. It generally began on the face and spread downwards, being most distinct on the back of the neck and shoulders, loins and buttocks, and on the exterior surfaces of the arms. It consisted of small spots of a color intermediate between measles and scarlet fever, being neither so livid as the former nor so brilliant as the latter, but more of a pink or rose-red color. The spots were not raised above the skin and were almost invariably set in clear skin. Such confluence as is the rule in measles was not seen, though in some cases the abundance of spots on the face, combined with feverish flushing, gave an appearance at first glance suggestive of confluence. The spots always disappeared on pressure. As is common with the disease, two forms of the rash were observed. One consisted of minute closely sprinkled puncta, occurring in patches, and sometimes was accompanied with slight general erythema, which at certain stages gave an appearance very suggestive of scarlet fever. In the other the spots were larger and slightly darker, more resembling measles, but differing from that in being lighter, more

regular (circular) in outline, level with surface, and quite without the velvety feeling to the touch which measles so often has. The spots also differed from those of measles in being somewhat darker towards the edge than in the centre. Both forms of rash were present on different parts in some cases, but no case was noticed where one form developed from the other. In both the color was sometimes darker on the lower part of the body than on the upper. The rash developed in from 18 to 36 hours, and remained out from two to four days, the shorter period being the more common; and it faded rapidly having a characteristic brown mottling for a day or two.

Many cases even with copious rash, had little or no fever. The highest record, apart from complications, was 103°F., and even when the temperature was raised, discomfort due to feverishness seemed less marked than similar degrees in other diseases.

One of the most constant symptoms was well marked enlargement of the cervical, occipital and post-auricular lymphatic glands, generally on both sides, sometimes quite evident several days before the appearance of the rash. Its constancy and early appearance give this symptom considerable clinical importance.

There were but few complaints of sore throat; but in nearly all cases there were very characteristic appearances in the throat, consisting of redness, streaking from congestion of the vessels, and slight swelling of the soft palate, fauces, and pharynx, but in many cases confined to the palate.

In no case was there marked coryza, and in few was there bronchial catarrh. A short dry cough was apparently due to the condition

of the throat, and in some cases it might be due to a condition of the peri-bronchial glands similar to that found in the neck.

The tongue was generally thickly coated, sometimes very like a scarlet fever tongue at first, but became brown and dry at a later stage. A very constant feature was that the fur came off in large patches, leaving a very red and raw surface.

The course of the disease was brief and complications or unfavorable sequelæ were the exception.

The *incubation period* was on the average longer than the 14 days of measles.

The *pulse* was quickened in every case, 120 being common and 140 noted in some cases.

The *urine* showed albumen in no case.

*Desquamation* occurred in eight cases and was of the branny type, limited in extent and most distinct on the face. It was usually over in three days and never lasted longer than a week.

In this epidemic mostly concurrent with one of measles, the following distinguishing characters were well marked:—

1. Rapid onset with few or no prodromata.

2. Comparatively mild form, and insignificant constitutional disturbance, even where rash was abundant.

3. Discrete rash of pink spots, mostly round and of various sizes.

4. Special conditions of tongue, throat and glands.—*Glasgow Medical Journal*, Aug., 1896.

#### Meckel's Diverticulum.

Dr. W. C. Dugan showed to the Louisville Surgical Society recently a specimen removed from a boy, aged 11 years, who was operated upon for appendicitis. When the abdomen

was opened in the usual site for appendicitis, this diverticulum presented, springing from the small intestine as they always do, about 18 to 36 inches from the cæcum. It was about 7 inches in length by 1-4 inch in diameter. Dr. Dugan believes that many cases of so-called sacculated appendicitis upon which we have operated have really been Meckel's diverticula. In this case the pedicle was twisted until it was about the size of a crow's quill and, until it had been untwisted, he thought it was a sacculated appendix and that it sprung from the large intestine. But further investigation found that it started from the small intestine; the intestine was brought up carefully, exposing about 12 inches of it, and after untwisting the pedicle, its base was found really as large any other part of the tumor, its small appearance being due to torsion. The diverticulum was ligated near its base with a double ligature and cut between. While debating how best to treat the pedicle the intestine filled with gas and the ligature slipped off, requiring careful closure of the intestine with a double row of sutures. Such accidents may often happen when the same mistake in diagnosis is made. All such appendices should be carefully examined, unless the method of inversion is practised in the treatment of the pedicle, when of course it would make no difference.—*Pædiatrics*, July 15, 1896.

#### Precocious Menstruation.

Dr. J. W. Irion reported to the North Texas Medical Association at its last annual meeting the following case:

On Oct. 10, 1895, I was called to attend Mrs. N. in labor. She is of a German family, well formed, strong

and vigorous. This was her second labor, the first child having been a boy, a fine vigorous child. At about 5 a.m. Mrs. N. was delivered of a girl infant weighing nine pounds and normal in physical condition. On the morning of the 17th I was called to see the baby. I found the infant in good condition, sleeping well, and taking its nourishment as it should. I was told by the mother that on her usual examination of the child that morning she noted a bloody discharge from the vagina. Upon examination I found the condition as the mother described it. The child seemed in no way disturbed. The flow lasted four days. In December the flow did not return and the child suffered from all the nervous phenomena that usually

accompany the missing of a period by an adult and she broke out from the top of her head to the soles of her feet with an eczema that persisted for some time but gradually subsided. Her mother attributed the non-return of the flow in December to a rather cold bath the day before the flow was expected. Since December the flow has returned with perfect regularity and the child is in good health, skin fair and clear, eyes bright and intelligent. The breasts and mons Veneris in the child are considerably developed, and during the flow the breasts enlarge and are somewhat sensitive to the touch. The mother's menstrual period was established at the age of thirteen years.—*New York Medical Journal*, Aug. 15, 1896.

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# ANNALS

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### ORIGINAL COMMUNICATIONS.

#### GYNECOLOGICAL ASPECTS OF NEURASTHENIA.

BY ELY VAN DE WARKER, M.D.

*A contribution to the discussion of Neurasthenia before the Syracuse Academy of Medicine.*

It is not a little singular when we take into consideration the frequent and more or less serious character of the complaints of women of purely functional nervous character, that the text-book writers on gynecology, with scarcely an exception, ignore the matter or give the subject only brief and incidental attention. Some authors, especially Engelmann, treat the specific symptoms that are grouped under the generic term of neurasthenia, as distinct neuroses, giving no place to the latter, even as a descriptive term. The explanation must lie in the fact that there are no gynecological conditions that can be grouped as sexual distinctions under the term neurasthenia. The only term that has nearly an equal generic value and one that has by use been confined to gynecology

is hysteria, and by confining both terms to the subjective functional nervous diseases of women, they have nearly an equivalent meaning, when viewed from the standpoint of the clinical pictures given by both terms. The mimicry of disease, for instance, which we have come to regard almost purely of hysterical origin and observed with much greater frequency in women than in the other sex. Dr. Wier Mitchell says what he likes to describe as 'general nervousness' is a fertile field for simulated maladies." Quoting the same author in the next paragraph he says, "I used to try to classify these cases under other heads, but came at last to see that there is a state which is best labelled thus." "This state falls on man or woman, or child, and is not hysteria." When,



however, we come to the question of treatment we find Dr. Mitchell considering both general nervousness, or nervous exhaustion, and hysteria under one head.

If we turn to the author to whom we owe the largest debt for our knowledge upon neurasthenia, Dr. Beard, we find him endeavoring to tabulate

#### NEURASTHENIA.

No convulsions or paroxysms.

No *globus hystericus*, no anæsthesia of the glottis, ovarian tenderness less common, and attacks of anæsthesia far less common and less permanent.

Symptoms more moderate, quiet, subdued, passive.

May occur in well balanced intellectual organizations.

Very common in males, though more common in females.

Always associated with physical debility.

Never recovers suddenly, but always gradually, and under the combined influence of hygiene and objective treatment.

If we consider the above groupings of different symptoms in the two diseases in the light of what Dr. Mitchell says about simulated disease, and the very general occurrence of hysteria in bad health, rather than in perfect health, which is a very extraordinary term for Dr. Beard to use, to say the least, when we call to mind the frequent association of hysteria with mental dullness and unemotional natures, and when all we can say about ovarian tenderness, that it is less common in one than in the other, we realize how slight the difference in the two clinical pictures is.

And yet there is a difference with

differentially neurasthenia and hysteria. It is worth while to give this tabulation just as the author has it side by side in order to show how faint the line of demarcation is, even at the hands of the most painstaking and elaborate author in the literature of the subject.

#### HYSTERIA.

Convulsions or paroxysms.

*Globus hystericus*, anæsthesia of the glottis, ovarian tenderness, and attacks of general or local anæsthesia.

Symptoms acute, intense, violent, positive.

Usually associated with great emotional activity and unbalanced mental organization.

Very rare in males.

In the mental or psychical form occurs in those who are in perfect health.

May recover suddenly, and under purely emotional treatment.

a clear and sharp outline, not in subjective symptoms, however, therein lies the mistake of Dr. Beard, but in etiological conditions. If Dr. Beard had simply confined his symptomatic differences to saying that one is the result of cumulative, slow acting causes, and the other the sudden manifestation of a well defined local condition, eccentric to the nervous system, or to trivial and transient emotions, he would have made the difference between the two conditions much clearer. If we say that in hysteria the woman cannot will, and in neurasthenia that she is too tired to will, I think we define clearly the difference in the

ideo-motor conditions of the two diseases. In such a broad definition between the mental conditions I am not defining fine distinctions, I desire to draw a vivid picture. Neurasthenia is the product of the exhausting demands of an exacting civilization, and hysteria the product of sex: the first engrafted upon a physical and mental organization inadequate to meet the strain and the second deficient in the will power to restrain the imperative emotions of sex within the boundaries of normal moral inhibitions. In saying this we come very near to defining the environment. In the first the factors are impersonal, and in the second individual.

From a careful study of the hysterical status as well as that of neurasthenia the neurotic temperament is a condition primary to the development of either. We find that the anæmia, impaired assimilation, defective elimination, date from the beginning of menstrual life. These women can bear no mental or physical strain. Hysteria attends the first break up from overstrain, and as nerve exhaustion develops, active hysteria merges into the many sided symptoms of nerve tire. To use the phraseology of another department of neurology, hysteria is the lesion and neurasthenia the reaction of degeneration. There is a change of type. Emotional explosives cease, the fitful periods of activity occur at longer intervals and are gradually replaced by muscular torpor. Mental alertness gives place to habitual hebitude. The ovarian pains, the cephalalgia, the backaches

the myalgias that would goad the active hysteric to an outbreak are now borne with dull apathy. A morbid desire for companionship and sympathy give place to a desire for solitude and seclusion. She cannot read, or talk, or take exercise and she lives on a minimum of food and drink. I think any one who has been accustomed to see and treat these cases will recognize this transition from one type of neurosis to another.

We have also cases in which hysteria and nerve tire are intercurrent. Wier Mitchell, Beard, Rockwell, Erb, and others, describe cases that can only be explained on the supposition that the two diseases run a parallel course. These cases I think present a distinct group. The typical hysteric well nourished and muscular, the woman I quoted Dr. Beard as describing as "in perfect health." Or, they are loaded with flabby, anæmic fat. These are the cases that so often show an inclination to simulated maladies. The true hysteric is not a mimetic. While the conscious mind—the ego—is capable of giving a just value to impressions the individual is governed by real impressions, but when the subconscious mind becomes the transmitter of impressions then "it becomes the storehouse and registry of all those intricate and complex energies which make up the responsive vital reflex of the varied and impressive environment." When the woman has reached this stage of subjection to the subconscious life uninhibited by a normal ego, she has passed the border land of hysteria and entered that of neurasthenia.

The relation of pelvic disease to neurasthenia is one of profound interest and practical importance. In the last ten years some theoretical surgery has been done which throws considerable light upon this side of the question. Dr. Batty evidently had the idea that the ovarian influence was largely at fault. The cases which he aimed to cure by castration were those of neurasthenia. Thousands of these defectives have been deprived of their ovaries under the impression that the whole system was perverted by a morbid ovarian impulse. I believe that the result of this wholesale destruction of functional life totally disproves the theory. It was rare that a woman was cured or even benefitted. Perverted ovarian function was a product not a factor.

This naturally leads up to a brief review of the conditions of the pelvic organs in neurasthenia. I am unable to say from my own experience that there is one condition of the pelvic organs that can be so associated. I have observed several cases that appeared to have their origin in childbirth, tears of the cervix with extensive cicatricial deposits in the flaps. As these cases made slow recoveries after operation, I assumed that this condition was the determining cause. I have observed that the laceration alone had nothing to do with the more or less severe nervous and mental implication in these cases. This appeared to depend entirely upon the extent of the scar tissue. Unless in the operation this was thoroughly removed the operation so far as nervous

and mental symptoms were concerned was a failure. Inflammatory conditions of the adnexa *per se* have been unattended with neurasthenia, as observed by me. I have seen nerve-tone and nutrition so lowered by frequent and severe relapses of pelvic inflammation that nerve exhaustion with its attendant neuroses was a symptomatic equivalent of neurasthenia; but this I do not regard as typical neurasthenia. Subinvolution when occurring early in married life, when the sexual organs govern the nervous system with imperious rule, I have seen associated with chronic bedism and other nervous reflexes that attend typical nerve tire. In some cases I have come to the conclusion that the endometritis had more to do with the nerve exhaustion than the subinvolution from the marked improvement following the treatment of this condition. But subinvolution with endometritis is such a very common condition and neurasthenia as an accompaniment is so very rare that I must conclude that some prior nervous tendency must cause this complication. Uterine prolapses and versions and flexions may also be found but the same qualification I have just made applies with equal force. We may find any possible organic pelvic defect attending neurasthenia, but in order to have such a result the woman must be predisposed to such a complication. That a woman with a healthy nervous organization, one with normal, mental and nervous resistance to nerve strain can become a confirmed neurasthenic,

I have never seen in my own practice or that of others. She may become a confirmed invalid, and a useful life may be thwarted, and this condition defy all attempts at drugging and treatment, but the nervous condition that we call neurasthenia never develops. She must be of the temperament, or the nervous constitution, or a neurotic, or of impaired nerve resistance to strain in order to develop a true neurasthenia.

That this is so let us for a moment refer to the nervous complications that may be found to exist with some developmental uterine defects. In the infantile uterus whether it is arrested in cervical or corporal developments, we nearly always find a body of feeble and delicate constitution. Dr. Arthur Johnstone in his paper read before the American Gynecological Society, on the Infantile Uterus, in 1887, shows clearly that this arrest of development is due to nervous and not direct nutritional causes. The tendency to nervous instability and the defective growth of special organs go hand in hand, and the uterine defect instead of being a cause is a result. The same may be said of developmental flexions. In these cases with a fair growth of the uterus we are often struck with the fact that we find the same delicate physique and neurotic tendency. Very frequently the functional life is relatively defective. The menstrual flow is scanty with irregularity. In such cases we do not have obstructive dysmenorrhœa as the cervical canal is equal to painless

uterine drainage. The dysmenorrhœa of these cases is congestive and not obstructive. This pelvic condition is often found associated with neurasthenia of the most profound and hopeless type. It is in this pelvic condition that the erotic element exists to still further tear to shreds the already nervous and mental wreck. Many are incurable masturbators even after marriage, but what to my mind is even worse than the physical act, is what may be termed mental masturbation by which I mean the constant and irrepressible mental image of sexualism that dominates the conscious life of the sufferer. These impressions no doubt have their origin in the lower stratum of subconscious life beyond the reach of the will and come to the surface to add one more factor of disturbance and strain to the conscious life of the woman. I have never seen one of these cases cured. The fulfilment of sexual function in no way lessens the demand or brings rest to the morbid impulse. As it is a neurosis it cannot be physically appeased. It is sexualism in the abstract without an impulse to the concrete.

There is but one other pelvic condition that I have seen associated with neurasthenia in women that occurs so frequently as to produce the impression of cause and effect. This is the association of developmental flexion in delicate nervous women that go on fairly well in life until after marriage, and these young women, unfortunately, nearly always marry as they are usually daughters of



well to do families, which invites young men for the supposed social advantages. They never improve under married life and maternity seems to be a physical curse. Dysmenorrhœa, which they, as a rule, were free from develops; local congestions from unbalanced pelvic circulation soon implicate the uterus, bladder and ovaries. Headaches, backaches, abdominal pains, mental strain soon ends in nervous exhaustion and years of unspeakable misery follow. I have seen young women of this type do good work as school teachers, accountants and type writers

and other useful occupations, break down and become neurasthenic a few years after marriage.

I hope I have made my position clear. Neurasthenia in women is not a disease peculiar to sex. It is only found associated with some pelvic defects just as it may be with the eye defects, or other physical derangements. It is found more frequently with women than with men because woman's life is more susceptible to disturbing influences and her conscious and subconscious life less able to endure prolonged strain from a hostile environment.

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## THE PROPHYLAXIS OF THE PUERPERIUM.

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MILWAUKEE,

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Nature herself is a most faithful and active prophylactic agent to the human being and especially to the puerpera. She produces by means unknown to us some remedy more potent and less toxic than any antiseptic discovered by man. On the other hand, she creates within the genital tract of the confined, under favorable circumstances, a *toxine* whose effects upon the human system prove fatal in spite of the untiring efforts of the obstetrician.

Not until puerperal septicemia was considered to be the result of the invasion of microbes into the birth-channel of the parturient was there any scientific advance made for its

correct treatment, and at present bacteriology and pathological chemistry are leading us on in the right direction to combat its evil effects.

In a preliminary report, published a month ago, Dr. J. Hofbauer<sup>1</sup> from Prof. Fried. Schauta's Vienna clinic, gives the result of his experience in seven cases in producing an artificial leucocytosis in puerperal septicemia by the use of nuclein, hoping that antitoxics may be freed in the body which can overcome the influence of the virus produced by the microbes present in the system.

Today, our object will be to decide upon the best methods of preventing infection in obstetric cases.

J. P. Semmelweis<sup>2</sup> may be properly termed the father of prophylaxis of child-bed fever. In 1846, just fifty years ago, he first demonstrated his theory by using antiseptics in the lying-in hospital of the University of Pesth, since he insisted on cleansing the hands with chlorine water before attempting an examination of the parturient.

*Subjective antiseptics* still prevails. Although the theory of self-infection had many supporters, the tendency now is in the opposite direction and the law is almost universally accepted, "To consider the obstetrican septic and the healthy parturient aseptic."

The virus which produces puerperal septicemia is, as a rule, introduced from without. The infection can in most instances, as we shall see, be traced to direct contact.

*First*, during parturition;

*Second*, during delivery of the placenta and membranes;

*Third*, during the lying-in period.

The general practitioner who is well aware of the dangers of sepsis can only practice subjective antiseptics and very seldom follow out aseptic principles in the lying-in chamber. How often is he called to an emergency obstetric case when he is least prepared to meet the required rules of asepsis. How often does it happen that he is called away from the bedside of a patient, dying from puerperal sepsis, to attend at once a case of labor where he has been the family physician for many years, and no one else would be entrusted with such a serious case, no matter how simple

the delivery may be. Can he refuse? How often has he no more than a few minutes to prepare himself, and no time whatever to arrange the bed and surroundings necessary to meet the requirements of asepsis. But, on the other hand, does it ever happen that a practitioner can become careless respecting subjective antiseptics? Credit must be given our older physicians, although they studied and practiced medicine before the days of antiseptics, inasmuch as they practice asepsis with more care than the younger physician, who, probably conscious of and elated over his former successes, becomes indifferent regarding asepsis. The young practitioner's busy life stimulates him to do the greatest amount of work in the shortest possible time.

In a normal birth, time is the greatest safeguard both for mother and child. It means a leaning hand to the natural forces, and is for this reason the greatest of all prophylactics. To give time is to say, "Let nature care for herself."

Let us be honest and consider for a moment in what manner we ourselves could have been the agents in introducing the infection into the genital tract of the parturient. Puerperal sepsis arises through contact primarily, therefore we must consider whether or not on any occasion we are carriers of pathogenic germs through the medium of unclean hands, instruments or clothing. Remember if possible, what other work preceded your first examination of the puerpera and then how many patients

suffering from infectious diseases or abscesses you may have prescribed for or examined in the meantime before your tedious labor case was terminated. You must all admit that some one of your colleagues is doing this sort of work daily, and to your great surprise his obstetric patients have apparently little disturbance during the lying-in-period, and make an uneventful recovery. In some instances, however, sepsis follows childbirth, and death ensues so quickly, that up to the present, on account of overwork, your busy *confrère* has not for one minute considered how that poor woman became infected. Possibly it was not his fault that infection occurred, the virus may have been conveyed by careless preparations of the dressings and solutions on the part of the attendants or assistants; notwithstanding we ask for an explanation which shall exonerate the physician. We cannot free our thoughts from the axiom that the healthy parturient was aseptic, and that our colleague or his help-mates were the agents of sepsis.

Should you enquire into the history of every case of puerperal sepsis that you may have met with in your own practice, and endeavor to trace the source of sepsis in your consultation cases, you will no longer be astonished over the results which have occurred from septic origin.

Some of your colleagues may doubt that puerperal septicemia originates from the invasion of microbes, because, as they assert, they have treated all labor cases but with dis-

similar results. In very lingering and instrumental deliveries the lying-in period remained normal, whereas frequently natural deliveries were followed by sepsis and death. The physician who practices subjective antiseptics, and is confident of his personal asepsis, can perform any obstetric operation called for, and his results will be alike both in the instrumental and natural deliveries. How could it be otherwise?

Why is it that a painstaking and tedious operator acquires better results ultimately than the brilliant and lightning quick surgeon? Because the former's work is more homogeneous: besides his asepsis is carried to greater extremes than that of the latter. The same advice we may give our colleague who in the natural confinements was indifferent in regard to asepsis, whereas in the instrumental deliveries he observed the laws of hygiene very strictly.

Considering the art of obstetrics the noblest duty with which we are entrusted, should my views on this subject fail to meet with your approval, my only apology must be my deep interest in this great branch of the medical sciences.

The obstetrician of the present glories not alone in saving 100 per cent. of the mothers and 98 per cent. of the babes he delivers, but he prides himself on the fact of being able to exclude sepsis from the lying-in chamber and of having lowered the rate of morbidity to 5 per cent. and hoping to reduce it still further. The statistics offered by Mermann<sup>3</sup> of the

lying-in hospital at Mannheim are very favorable. In a series of 1,200 confinement cases, the rate of morbidity varied between 5 per cent. and 7 per cent., and death from sepsis never occurred. Among 300 confined<sup>10</sup> within fourteen months (Dec. '93—Feb. '94) there was not noticed a serious case due to infection, the rate of morbidity remained 6-7 per cent. allowing a single rise of temperature above 38° (100.4° F.) and cases of extragenital disorders.

The results of Mermann, who strictly practices subjective antiseptics, are by far better than those of the university hospitals of Marburg and Wuerzburg where objective antiseptics is enforced. Professor Ahlfeld<sup>10</sup> of Marburg, reports 1,300 cases of which four died, one of septicemia, having been brought into the hospital in a septic condition, but the rate of morbidity varied between 33 per cent. and 60 per cent. Professor Hofmeier of Wuerzburg,<sup>4</sup> whose cases are also used for clinical teaching by practitioners, students and women studying midwifery, reports seven deaths out of 1,000 cases, three dying from septicemia, of which two were brought into the hospital already infected; the rate of morbidity, however, was only 10 per cent. Hofmeier orders a prophylactic sublimate douche 1-2000 to be given before and after each digital examination.

For the year of 1894 R. Braun v. Fernwald<sup>5</sup> of Professor Gustav Braun's obstetric clinic in Vienna, reports 3,088 births; the rate of morbidity of the lying-in was only 6.14

per cent. allowing a rise in temperature of 38° C. to be counted normal. Out of twelve deaths which occurred, nine died from septicemia and three from other causes. Four out of nine were infected outside of the hospital, leaving a mortality rate of 0.12 per cent. infected in the hospital. G. Braun's method consists of combining asepsis with antiseptics. Vaginal douches before labor are ordered only if the secretions are pathologic; digital examinations during labor are prohibited as much as possible and great stress laid on the use of external abdominal palpation for diagnostic purposes. One per cent. lysol solution is used to irrigate the vagina after an examination, also should the secretions be purulent or a rise of temperature indicate a febrile condition of the parturient. Before every operative interference irrigations of lysol are given; also whenever the hand of the operator enters the uterine cavity or passes the internal os, intrauterine douches are ordered. Similarly when the amniotic fluid has changed its color as may happen with a decayed and macerated fetus; whenever a rise of temperature proves that the birth was not conducted under strictly aseptic conditions, intrauterine injections of permanganate of potash are given. In all classes where the lying-in period remains normal, vaginal as well as intrauterine injections are prohibited.

Leopold,<sup>6</sup> in opposition to Ahlfeld in order to prove the abuse of the prophylactic vaginal douche, allowed



every other parturient to be confined without this precaution. His results were surprising; the former treated with prophylactic douches showed a morbidity rate of 13 per cent. and that of the latter only 5.6 per cent. Leopold concludes that in normal births of healthy women treated without prophylactic douches the best results were obtained in the lying-in period.

On account of the great diversity of treatments during the first stage of labor as a preventive of septicemia, total abstinence of vaginal examinations was practiced and abdominal palpation and examinations per rectum were substituted.

Leopold<sup>7</sup> and Späerlin report 1,000 births where the mothers were examined only by the external method; the exact position of the fetus was incorrect in 6.5 per cent.

In the European countries of the different nationalities, deaths due to puerperal septicemia vary from 0.3 per cent. to 0.6 per cent. Hegar<sup>8</sup> claims that within the last forty years the total mortality rate of women confined, including deaths due to septic infection, remained unchanged in Baden. Between 1880 and 1887 the mortality rate was 0.74 per cent., of which 0.4 per cent. to 0.5 per cent. was due to puerperal septicemia. According a report by J. K. Kelly of the private practice of English physicians, the mortality rate was 0.6 per cent. or 17 deaths in 2,832 births. For Elsass Lothringen, Professor Freund, of Stras-

burg, claims that the death rate due to puerperal sepsis does not vary more than 0.3 per cent., or 3 deaths out of 1,000 confined; for the city of Strasburg during 27 years, the rate continued 0.4 per cent. In southeastern France, Chenevière reports the death rate due to puerperal septicemia to be 0.6 per cent. in private practice. The polyclinical reports<sup>8</sup> of the University of Strasburg, Dorpat of Russia, Berlin and Munich give results as follows:

Freund of Strasburg reports 1,100 births, total mortality 6, sepsis none.

Kuestner of Dorpat reports 1,103 births, total mortality 21, sepsis 40.36 per cent.

A. Martin of Berlin reports 465 births, total mortality 5, sepsis 30.64 per cent.

V. Winkel of Munich reports 1,685 births, total mortality 34, sepsis 13.077 per cent.

These reports may be compared with the statistics of our American cities.

Through the kindness of Dr. Coon, registrar of vital statistics of the health department of the city of Milwaukee, I have received the following figures: In the year 1895, 8,155 women were confined, of whom 29 or 0.36 per cent. died from puerperal septicemia, 6,710 births being reported by 190 midwives, 1,445 births being reported by a number of the 300 registered physicians.

From our obstetric practice each one of us must realize that the less

the amount of interference with the parturient the better in every respect we find the results. We do not fear *self-infection* unless we have practiced meddlesome midwifery. We know from bacteriologists that bacteria and cocci are found in the vaginal secretions during pregnancy, but we rest assured that in the healthy woman nature takes charge of them during parturition. In the first place, the amniotic fluid and then the pressure of the body of the fetus rid the vagina of the mucus and its contents, and lastly the flow of blood preceding and following the delivery of the placenta sufficiently irrigates the genital tract.

The theory of self-infection,<sup>9</sup> first advanced by Semmelweis, consisted of the following argument: that organic matter, such as the lochia, remnants of decidua and coagula of blood, would oftentimes undergo a decomposition within the uterine cavity, and also tissues contused by pressure of the obstetric forceps would become gangrenous, and then by absorption produce childbed fever, and that these are cases of self-infection and cannot be prevented. Amongst the men of the present, Spiegelberg argues that there exist two kinds of puerperal fever, the *traumatic* or pus-producing form, and the *malignant*, by absorption of the genuine wound virus, producing puerperal septicemia. The former he claims is self-infection, although he admits that the germs are from without. Ahlfeld says self-infection in its proper sense is an impossibility, since without the invasion

of microbes from external sources infection is out of the question. The main occasions for self-infection are retained particles of placenta, membranes and decidua. Landau opposes the theory of self-infection on the ground that infection only results from the introduction of germs which gain entrance by the hands of the obstetrician. Ohlshausen holds that the ordinary febrile symptoms noticed in the lying-in are benign and are due to self-infection, whereas the cases of puerperal fever with a fatal issue are malignant and are due to an infection from without. Fritsch does not uphold self-infection because the factor producing disease is from without. He proposes the use of the name non-pathogenic infection in cases of putrefaction of the lochia, and decomposition of contused vaginal tissues and in cases of uncleanness. The putrid contents and secretions of the vagina need not affect the lying-in if the wounds of the vaginal tract have healed; only in the presence of lacerated wound surfaces infection travels into the neighboring tissues and ascends into the uterine cavity or parametrium. Cases of non-pathogenic infection are due to carelessness on the part of the attendant.

Credé is opposed to the adoption of the theory of self-infection. Nature protests against the absorption of the virus unless the natural protections are destroyed, then infection may result through the physician or midwife.

Von Campe says we must oppose

the doctrine of self-infection since we can practice subjective antisepsis only so long as we blame ourselves in a case of infection.

Kaltenbach holds self-infection dependent upon the presence of pathogenic germs within the genital tract. He claims that the microbes remain innocent if parturition is not interfered with; the sero-mucous secretions, the amniotic fluid and flow of blood after expulsion of the placenta, dispose of the germs, and later the alkaline reaction of the vaginal secretions counteract the virulence and retard the vitality of the microbes. The infection that occurs is due to contamination of the lacerated or abraded mucous surfaces from the putrid contents, notwithstanding the examining finger or instrument being sterile. Cases of late infection are due to renewed injuries of the vagina or cervix by absorption of the lochia, as may happen by removal of perineal sutures, unless the vagina is sterilized with antiseptic solutions.

Allow me to call your attention to the safest method of preventing infection during the expulsion of the placenta and membranes. The expectant treatment is by far the wisest procedure to be adopted in effecting a complete evacuation of the uterine contents, nor need too great a loss of blood from atony of the uterine walls be feared by pursuing this method. Ahlfeld's practice of waiting until the uterine and vaginal contractions expel the placenta, even if it takes more than twenty-four hours, can only be strictly followed out in a lying-in

hospital. Credé's method of expulsion of the placenta by pressure on the fundus of the uterus, applied immediately after the birth of the child, is to be abandoned, nor was it ever practiced by the author himself. The power of the uterine walls to expel the placenta varies with each individual case, therefore a stringent rule cannot be enforced to meet all cases. On an average 20 to 30 minutes may elapse after the birth of the child until separation of the after-birth can be looked for, and then a steady pressure applied on the fundus of the contracted uterus in the direction of the pelvic axis, accompanied by constant massage until the placenta with the last shred of the membranes appears at the vulva, suffices and ensures a safe delivery of the secundines. Intrauterine interference must give way to the expectant plan to prevent infection. Probably in not more than 1-2 per cent of all cases will it ever be found necessary to use the manual separation of the placenta if the above method is practiced.

Finally, the hygiene of the puerperal state demands an active observance of cleanliness of the external genitals of the lying-in: antiseptic solutions of bactericidal action must be used for cleaning, and a sterilized occlusion bandage applied to prevent the admission of air. Lacerated or incised perineal wounds are to be accurately approximated and securely sutured at the time. Vaginal or intrantrine irrigations are superfluous in the healthy parturient, and if indicated through a rise of tempera-

ture of the lying-in, the expectant treatment should be pursued, but if irrigating the genital tract be persisted in, the irritation of the douches may give rise to that condition which Fritsch correctly terms the non-pathogenic fever of the puerpera.

I am sure that many of you will bear me out in the statement that temperatures are often produced by intrauterine manipulations, at least it has been my experience when called in consultation to meet with cases of non-pathogenic puerperal fever that were supposed to be cases of septicemia. My successful remedy consisted in prohibiting the further use of the curette or douche, and in ordering rest and quiet for the patient, also allowing a free use of stimulants and nourishment. The fact was evident, for invariably in the course of twenty-four hours the temperature would drop to normal and the recovery would remain uneventful. Why do we frequently see temperatures rise from  $101^{\circ}$  to  $106^{\circ}$  F. after unnecessary curettage to remove supposed decomposed masses of placenta? Because absorption of the putrid material immediately takes place, producing perimetritis and very often parametritis with abscess formation.

Remember that I speak of unnecessary interference of the uterine cavity, and do not criticize the use of the curette in proper cases, but I take the occasion to protest against the too free use of this powerful instrument which, in the hands of some, seems to be the only means of com-

batting the fevers arising in child-bed, who are uncertain whether they are dealing with a case of non-pathogenic puerperal fever or with a case of puerperal septicemia. From the above, and from my own obstetric experience, I draw the following conclusions.

1. Puerperal septicemia is the result of contact infection.

2. Subjective antiseptics prevents infection.

3. Objective antiseptics should only be practiced in cases of operative interference, but the prophylactic vaginal douche is not a safeguard against infection; the vaginal surfaces must be cleansed similarly as before a gynecologic operation.

4. The secundines must be delivered *in toto*, since the health of the lying-in depends upon a complete evacuation of the uterine cavity and a further source of infection is wanting by the absence of placental or membranous remnants.

5. A normal lying-in period is unnecessarily tampered with by irrigating the genital tract.

6. Obstetric nurses ought never to nurse contagious diseases.

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## THE TREATMENT OF ECLAMPSIA.\*

BY PROFESSOR CHARPENTIER,

PARIS.

I now arrive at the most delicate part of my paper, which is the obstetrical treatment of eclampsia. I say delicate, because I am in absolute opposition to the ideas which reign at the present time in foreign countries. Happily for me, I am certain that I am in accord with the majority of French obstetricians, as well as with those that were formerly my masters, and those who are to-day my colleagues at the Academy, and it is, so to speak, in their names, as much as in my own, that I come to combat a practice that the French school considers dangerous.

This practice is a hasty obstetrical interference in eclampsia. But in the first place we must establish a division of the conditions and con-

sider each one separately: First, those in which a woman is in full evolution of eclamptic attacks, labor having come on spontaneously, and in which only a slight interference is necessary, which simply consists in hastening the end of labor. Second, those cases where the woman is in a full eclamptic attack, the labor does not come on, no matter what may be the number or the intensity of the attacks.

*The patient is in a full eclamptic attack, and labor has come on spontaneously.*

Here, gentlemen, we are all of the same opinion, and the rule to be followed by the obstetrician is absolute: To end labor as rapidly as possible by the forceps, or by version and extraction, and doing this is for the interest of

\* Concluded from the December number.

the mother, as well as for the child, every time that it can be done without violence, that is to say, *the cervix being dilated or dilatable and the woman well formed.*

Depaul, who, on this occasion, was the forerunner of Dührssen, went still further and in his book you will find the following paragraph:—

“If the orifice is already dilated, although insufficiently so, and the child is alive, it is to be feared that if new attacks are made, it will die, and this fact auscultation will allow us to foresee by indicating troubles in the foetal circulation: if at the same time labor progresses slowly, if the borders of the orifice are rigid, the hope of preserving the life of the child would make it legitimate to interfere more actively and should furnish an indication for making a few incisions in the borders of the os.”

It is consequently in the interest of the child, and not of the mother, that Depaul authorized this surgical interference, and this is a point that should be borne in mind. And still more, Depaul demanded that dilatation should have commenced, that is to say, a commencement of a spontaneous labor.

I have seen my teacher have recourse to this method several times, and I must confess that the results were disastrous. It is true that antisepsis was not known at that time and that is sufficient to explain the bad results.

Second, *the patient is in eclamptic*

*attacks, and labor does not declare itself.*

Here, gentlemen, according to my way of thinking, we must establish a sub-division, according as to whether the attacks took place when the woman was at some distance from the term of her pregnancy, or the pregnancy has arrived at term, or nearly so. I will not insist on this point, because the partisans of interference appear to attach very little importance to this question. It is sufficient for them that pregnancy has arrived at the seventh month, that is to say, that the child is viable.

No matter how it may be, the question is as follows:—*The woman is in full eclamptic seizures, and labor does not come on.* Now, what shall we do? Should we simply institute a medical treatment, or should we induce labor?

Before the introduction of milk diet Tarnier had already put forward this question regarding albuminuria.

All obstetricians said they were of the opinion that labor was a favorable circumstance in eclampsia, and should we not, in order to stop an albuminuria of pregnancy and prevent possible convulsions, consider the question of premature labor. As conditions of this interference, Tarnier believed that pregnancy should have arrived at the eighth month; that the albuminuria must be severe, and that there be present the forerunning symptoms of eclampsia. The patient should be a primipara, or, in the case of a multipara, should have had eclampsia during a former labor,

and lastly it was necessary that the child should be alive, and that the inefficacy of medical treatment had been duly proven. But, in this case, you see, it is necessary to produce a premature labor and not have recourse to a forced labor.

Since the use of the milk diet, Tarnier has completely given up this idea, but it has continued to gain weight in Germany, and Moricke considers this treatment as the only efficacious one, and it has been carried out still further by Schroeder, who goes as far as to advise producing miscarriage.

From the application of labor in albuminuria, to the induction of this labor in eclampsia, there is only one step, which was soon gone over, and the profession did not stop there. Under the influence of the German writings, obstetricians, excepting in France, have gone very much further, and to-day the most universal treatment for eclampsia is no longer an ordinarily produced labor, but an accouchement forcé.

The proceeding in this varies, some following Dühressen perform deep incisions of the cervix, completed, if necessary, by vulvar and perineal incisions, others, with Bossi at the head, recommend dilatation with instruments, while others use manual dilatation: the last, still more radical, go as far as advising the Cæsarean operation.

Gentlemen, three years ago I protested vigorously at the Academy of Medicine against such proceedings. To-day again, in spite of the cases

published since that time, my protest is just as energetic.

I believe, and I am convinced, not only that induction of labor is useless in eclampsia, but that to go further still and have recourse to accouchement forcé, is to expose ourselves to serious errors, and far from making it the means, par excellence, of curing eclampsia, it is only in extremely rare and absolutely exceptional cases that we are authorized to perform this operation, which in principle should be done away with in obstetrical practice.

The reasons on which I base my statements are of two orders: First, theoretical reasons, and secondly, statistics.

*Theoretical reasons.*

(a) In the immense majority of cases, eclampsia appears during the latter days of pregnancy, or at the beginning of labor. Cases in which eclampsia begins sooner are an exception, and all the more so the nearer we arrive at the beginning of pregnancy.

(b) When eclampsia comes on with labor, the latter generally progresses with a very great rapidity, so considerable that in a number of cases it is, so to say, passed by unnoticed.

(c) The eclamptic attack is only in reality the symptom of an auto-intoxication, that the emptying of the uterus cannot make disappear suddenly.

(d) In a large number of cases, not only the attacks continue after

and in spite of the labor, but appear after delivery.

(*e*) The provocation of labor always demands a certain time, and the time necessary for labor to come on and to produce spontaneous termination of labor, or at least, in order that the interference may be harmless, is often longer than the duration of the affection for which it is performed.

(*f*) Any irritation of the uterus, or its neighborhood, often is sufficient to bring back the convulsions.

(*g*) The child often dies during the first attacks. In this case it often happens that labor does not come on immediately, and that it only does occur from eight to fifteen days afterwards. It is the rule then that the attacks do not re-appear at the time of labor, and that the patients go through it without any more convulsions. In this case, pregnancy is interrupted by death of the child, and it is the interruption of pregnancy and not of the labor that brings about an arrest of the eclampsia.

(*h*) Any operative interference makes the prognosis of the puerperium more serious, and all the more so when we are dealing with cases of eclampsia.

(*i*) Accouchement forcé, before the time of antisepsis, was a disastrous operation for both mother and child. Since antisepsis the dangers are less, but it is still very serious, even according to those who perform it.

(*j*) And for a still greater reason, it is the same with the Cæsarean operation.

Gentlemen, these objections, al-

though purely theoretical, appear to me incontestible, having never been objected to, but nevertheless accouchement forcé is none the less recommended more and more warmly. It is especially Dührssen's method, which enjoys great favor in Germany and in other countries, in spite of the opposition set up by a certain number of obstetricians, and Dührssen is so convinced of the value of his operation that he wishes it to be applied at the beginning of the very first attack of eclampsia, and without having recourse to any other kind of treatment.

As I have said, gentlemen, it is this practice that I wish to combat, and I hope my colleague will excuse me for the intensity of my attacks—there is absolutely nothing personal about them, and it is simply on the basis exclusively of science and practice.

In the first place, what is the figure of mortality from eclampsia? For the children it is 44 per cent., and it varies for the mother with different writers, to from 19 per cent., 24 per cent (Dührssen), 28 per cent., 30 per cent., and 34 per cent. Can this figure be less by employing accouchement forcé? I do not think so, and that is what I am going to try to demonstrate.

In the first place, Dührssen, relying on the figures of Braun, Leopold, Lantos, Löhlein and Olshausen, commences by establishing as a principle, that eclampsia stops most generally after the uterus has been emptied, and that consequently the first duty



of the obstetrician is to proceed to this emptying of the uterus, if necessary with force, no matter what may be the stage of pregnancy, and whether there is or is not commencement of labor.

To these figures we might in opposition put those of Schauta, Brummernstadt, Wieger and others, who show that eclampsia, post partum, is met with a frequency of from 30 to 35 per cent. Eclampsia, adds Dürrssen, is more serious the greater the number of the attacks, and consequently where operative interference is employed, the greater will be the chance of obtaining a complete arrest of the attacks, or at least a decrease in number, and consequently the patient will be given a better chance of getting well.

This is a most logical conclusion in appearance but in reality is not valid, because the principle from which it is deducted is not rigorously true.

What makes eclampsia serious, is not the number of the attacks but is the manner in which they act on the economy. Who has not seen women die without having had more than four or five attacks, and who among us have not seen them get well after having twenty-five, thirty, or even more. Is it necessary to remind you of the cases of Pajot, Bailly, etc., in which the woman got well after having had one hundred or more attacks.

There is here an unknown quantity which we must consider, and it is what Dürrssen has himself well understood, because he mentions a certain number of similar cases to those which I have

just mentioned, and, like myself, he draws his prognosis especially from the condition of the pulse, the respiration and the greater or less intensity, as well as the duration of coma.

"In cases," he says, "where coma is deep, and in which death occurs, there is, as has been demonstrated by Virchow, Schmorl and Klebs, at the same time as the coma, serious troubles in the organs of respiration. These troubles are produced by pulmonary œdema, pneumonia or fat embolus. Now, if the uterus is rapidly emptied, and the most rapid method is that of deep incisions of the cervix, followed by extraction of the child, these complications may be avoided, and both mother and child will be safe."

This reasoning appears to be unattackable, but, nevertheless, it is easy to demonstrate that it is wrong from the beginning.

If the patient has all these complications, it proves that she is diseased from her eclampsia; if she is diseased from eclampsia, it is because she is thoroughly intoxicated, and the emptying of the uterus will not instantly suppress this intoxication, and, if the complications produced by the fact of this intoxication, such as pulmonary œdema, or congestive pneumonia, etc. are very intense and have very deeply acted on the economy, we may perform accouchement forcé, we may empty the uterus, but the woman will die just the same, and that is what is demonstrated by all the cases reported.

Dürrssen says that his operation is inoffensive in itself, and that it is of

no importance, and that it is worth taking into consideration. This is a great mistake, because it is sufficient to look over the German statistics, those of Dührssen himself, to have a contrary proof.

The author whose ideas I am attacking, has so well understood the truth himself, that, not being able to contest the results furnished by his own statistics, he tries to make little of accouchement forcé, by saying that it does not give such satisfactory results as should be expected of it, because it is performed too late. Then, as it is necessary to find the why of these complications, as he cannot deny their frequency and their gravity, he puts it all on the back of a prolonged narcosis, which he absolutely rejects.

I have already combated these assertions, and I have shown you that they were too absolute. I will convince you still more, I hope, when we examine the statistics.

But there are other reasons, in appearance more serious, that have been brought up in favor of accouchement forcé, and on these I must insist for a few minutes.

1st. The first is, that *when eclampsia takes place post partum, it always ends in recovery*. Consequently, empty the uterus as early as possible, in order to place the woman in the conditions of a post partum eclampsia. Put in this way, this proposition is absolutely false, because the mortality of eclampsia post partum, is, according to the German writers, from 11.47 per cent. to 12.5 per cent. Of course this estimate is far too

moderate, if, instead of considering exclusively eclampsia post partum, we take in the cases in which this post partum eclampsia has only been the continuation of the diseases which broke out during labor, and which has not stopped, in spite of the emptying of the uterus. This mortality which follows, in fact, is not limited to from 11 to 12 per cent but is in reality 23.13 per cent. (Dührssen), to 37.21 per cent. (Lantos and Gettkauk).

2nd. The second reason brought forward is that *the emptying of the uterus corresponds to all the pathogenic theories of eclampsia*, no matter what they may be. To all, perhaps, excepting that one which I believe the truest of all, the theory of auto-intoxication of Bouchard and others.

3rd. And lastly, the merited reproaches that have been made to accouchement forcé, are said to fail if we submit women to *complete narcosis* at the time of the operation; if we *operate as quickly as possible* with the first attack, before the appearance of pulmonary or cerebral œdema, or fat embolus, which so often renders eclampsia mortal; if we employ during and after the operation a *rigorous antisepsis*. It prevents women from having septicemia and makes the operative processes inoffensive.

Surely, the dangers of accouchement forcé are very much lessened since antisepsis, but it nevertheless, remains a delicate and difficult operation, which exposes the patient to hemorrhage, lacerations, which neces-

sitate sutures, as well as essentially surgical care, and which does not always give results hoped for, and far from it, as is proven by the observation of various operators, including Dührssen himself.

Let us examine the different conditions, in which we may, according to various writers, perform accouchement forcé by Dührssen's method. There is one which is admitted by the inventor himself which is indispensable, and that is that the supra-vaginal portion of the cervix is dilated. Now, if this is the rule in primiparæ, at the end of pregnancy, it is not the same in multiparæ, and here then we at once exclude an entire class of patients.

Supposing that we have a patient taken towards the sixth or seventh month of pregnancy. Whether she is a primipara or a multipara, this dilatation of the supra-vaginal portion of the cervix will not exist, and, nevertheless, we advise accouchement forcé. We perform it, and we are in opposition to ourselves, since we consider this dilatation of the supra-vaginal portion of the cervix as indispensable.

And lastly, admit this dilatation and let us study the operation in itself.

When once we are assured that the supra-vaginal portion of the cervix is largely open, we perform with large scissors a number of incisions, including the entire thickness of the cervix in the infra-vaginal portion of the cervix: and extending as far as

the vault of the vagina. This done, we rapidly end labor by an application of the forceps or by version, and, if necessary to facilitate the extraction, we make more or less deep incisions in the vagina, vulva or perineum. Delivery effected, we close by sutures the borders of these incisions, using a rigorous antiseptis.

This is, as may be seen, an accouchement forcé in the full sense of the word, and a bloody one. Dührssen has had six successful results out of six patients in the beginning. His operation applied to thirty women, gave thirty living women and twenty-four living children.

This is a very admirable result, if it were only correct, but unfortunately it is not so, because Dührssen includes in these thirty cases, women who are not eclamptic, and who consequently would not enter into consideration for the treatment of eclampsia, and, if we take exclusively the cases of eclampsia, in which this operation has been performed, we find twenty-seven with but two deaths.

We are here certainly far off from the ideal. No, gentlemen, we must not have an exaggerated fear of incisions of the cervix. Surgeons and gynecologists have given us light in this respect, but what is dangerous in this operation is the extraction of the child. Now, in fact, if the supra-vaginal portion of the cervix is not perfectly dilated and these incisions are made in the cervix, they may increase in size at

the time when the head passes through, to such an extent that they may reach the lower segment of the uterus, and thus produce genuine uterine tears. I have unfortunately seen a case a long time ago, with our much regretted friend, Blot.

And still more, even in fortunate cases, they are not always without consequences. The German surgeon admits himself that cicatrization is not always regular, and there is sometimes ectropion of the mucous membrane. Now these lesions may later on produce terribly bad health in the patients and thus necessitate other operations.

As to hemorrhages, they do not occur, and he says, "I have never seen one". I do believe that in this case Dührssen is far too affirmative, and I have seen for my part hemorrhages occur after deep incisions of the cervix. It is true it occurred in women who were not pregnant and consequently not eclamptics, but pregnancy develops the vascular supply of the uterus enormously, and it is consequently very probable that less fortunate operators than Dührssen will see one day or another hemorrhage occur, even if none has been observed up to the present time.

Such is Dührssen's operation, such is the method that he advises to be applied to the cases of eclampsia, and which should be done as soon as the first attack occurs.

Some of my friends, Dolèris among others, have employed this method, and the results were disastrous: this

is not astonishing, because, when accouchement forcé is indicated, the resistance and the obstacles do not always depend exclusively on the cervix. They may be situated very much higher up at the ring of contraction of Bandl, as is proven by a recent case reported by Dr. Robert, and then you may perform deep incisions of the cervix, as well as of the vulva and perineum, but you will meet with difficulties of such nature that you will lose all the benefit that your hasty interference has given you, and the child will nearly always die, and will expose your patient to uterine rupture, if you insist, and in a word, to a certain number of dangers, which are at least as serious as the eclampsia itself. "My patients have gotten well", says the German writer, "thanks to my operation, and consequently it must be good". A conclusion which is very erroneous, according to my way of thinking: if the patients have gotten well (a certain number, not all, however), it is not on account of the operation, it is in spite of this operation. It is due to antiseptics alone that they have survived this violent operation, that is declared inoffensive, and, which, according to myself, carries with it a great many serious dangers. The proof is to be found in the cases reported by the defenders of this method. Look back on my article written in 1893. It is based on 454 cases taken exclusively from German clinics, and of which 200 occurred in Dührssen's practice,



and you will see there proved that I am absolutely in the right.

Since it is Dührssen's method that I am attacking, I will limit myself to his own cases, but I will ask you in the first place to concede me one point, and that is that we will not make any selection of these cases, which is so excellent when one wishes to demonstrate the excellency of an operation, and which make the results of the statistics so false.

For me all cases of eclampsia which die, whether directly from the eclampsia, or secondarily to the complications or to the consequences of this eclampsia, should be counted among those dying from eclampsia. This starting point once admitted, we will study Dührssen's cases.

"My statistics" says Dührssen, "prove that emptying of the uterus causes the eclampsia to stop." Thus out of 118 cases (you see we no longer consider the 200) I have found: arrest of eclampsia ante and intra partum, 65 cases with 17 deaths; continuation after labor, 53 cases with 5 deaths. Consequently the eclampsia stops in 89 per cent. of the cases.

Gentlemen, I do not know how Dührssen gets at the figure of 89 per cent. because 65 cases out of 118 gives a proportion of 55 per cent. and not 89 per cent. The difference between the number of cases in which the attacks stop, and those in which they continue is consequently about 11 per cent.

And still more, of these 118

women, 22 died, which gives us a proportion of 18.64 per cent. which is assuredly a very remarkable figure, but it is not in reality exact, because he only considers 118 of his cases and not the original 200.

"If labor had been induced earlier", says our colleague, "they would not have died." This is assuredly possible but it is very difficult to prove, and to reason in this way is to reason by simple hypothesis.

But this hypothesis itself is not admissible, because it is demonstrated by the figures given by Dührssen, that the mortality is greater after artificial labor than after spontaneous labor. These figures are as follows: induced labor, mortality, 23.75 per cent. spontaneous labor, mortality, 21 per cent. and this is the conclusion arrived at by Schauta.

Induced labor, mortality, 43 per cent.; spontaneous labor, mortality, 26 per cent. This is what I have discovered by examining 454 cases reported in Germany, on which my paper written in 1893 is based. Spontaneous labor, mortality, 13.93 per cent.; artificial labor, mortality, 29.13 per cent.; accouchement forcé, mortality 40.74 per cent.

By examining these cases in every way, grouping them in no matter what fashion, we will always get the same results, with very little differences in the per cent. which proves in an indisputable way the superiority of expectation and medical treatment. Spontaneous labor, mortality varying from 13.93 per cent. to 14.96 per cent.; artificial labor, mortality vary-

ing from 29.13 per cent. to 31.04 per cent., accouchement forcé, mortality varying from 60 per cent. to 74 per cent.

The second manner of accouchement forcé consists in instrumental dilatation of the cervix and the extraction of the child. Bossi was the promoter in 1890. His instrument is very ingenious and fulfils four conditions that the author considers as fundamental: First, the dilator can be introduced into the cervical canal after the fourth month of pregnancy, because at this epoch, no matter what may be the conditions, or the length or the size of the cervix, the canal is sufficiently softened to allow the three branches of the instrument to enter. Secondly, we can always obtain a sufficient dilatation with these three branches, because they may be dilated to a diameter superior to eleven centimeters, taking into consideration the great resistance of the walls of the cervix. Thirdly the surgeon may obtain a sufficient dilatation in twenty minutes, even in a primipara, with a long unsoftened undilated cervix. The more or less long time necessitating dilatation should be the rule, according to the urgency of the indications. Fourthly, hardly introduced and dilated, either acting as a foreign body, or by the pressure that they exercise, the branches always provoke contractions, which become more and more strong, as the force of the dilatation is increased.

Thanks to his colleagues, both in Italy and in other countries, Bossi

has on record 112 cases: of these 62 were primiparae, 47 of which had no dilatation of the cervix at the time of the operation, and in 29 others the cervix was still at its normal length. The indications for the interference were as follows: Eclampsia, 38 cases. Central insertion of placenta, 11. Marginal insertion of the placenta, 14. Rapid induction of labor or accouchement forcé for various medical indications, 17 cases. Cicatricial stenosis of the cervix, 9, and anatomical stenosis, 23.

Unfortunately the author does not give the results in the 38 eclampsies, and, although giving justice to the ingenuity of the method, I cannot give you any conclusions.

*Manual Dilatation.* This is the method of Haultin of Edinborough. It has been successful, but it is of a difficult and often slow application, and, if you wish to realize the difficulty in its execution, you have only to read a paper delivered at the Academy by Dr Robert, in order to understand the danger that the patient runs.

There now remains Cæsarean operation, put forward by Halbertsma.

Gentlemen, if we consider the Cæsarean operation as an ultimate resource for eclampsia, I will still admit it to a certain extent, but to make it an every day treatment of eclampsia, appears to me to extend beyond the limits of a healthy practice. The results, for that matter, are not very brilliant, because the mortality is 36.36 per cent.

And lastly, gentlemen, to all the

reasons put forward by myself against *accouchement forcé*, I will add one more which although not essentially scientific, appears to me to merit your attention.

If in experienced hands *accouchement forcé* may give and has given some happy results, we must not forget that among the physicians who attend to obstetrical practice, a large number are only too disposed to operate, even in cases in which this intervention is at least useless. To advise and recommend *accouchement forcé* in eclampsia, appears to me to encourage practitioners to a fatal road and to multiply still more the already considerable dangers which unfortunate women run in eclampsia by itself.

Having finally reached the end of this very long report, I think myself authorized to submit the following conclusions :

1. Every pregnant woman with albumen in her urine being exposed to attacks of eclampsia, the milk diet giving splendid results against the albuminuria, and in particular that met with in pregnancy, the urine of pregnant women should be examined with the greatest care, and, if the presence of albumen is found, no matter how small it may be in quantity, an absolute and exclusive milk diet should be instituted. This is the preventive treatment par excellence of eclampsia.

In cases in which œdema is present, without albuminuria, it is well, if not an absolute necessity, to prescribe the milk diet.

2. Every time we find ourselves in presence of an eclampsia, begin, if the patient is strong and vigorous and if cyanosis is present, by a bleeding of 200 to 300 grams, and then give chloral, according to the precepts that I have given : give milk by the mouth and, if necessary, through a sound.

3. Combat the attacks themselves by inhalations of chloroform and favor diuresis by sub-cutaneous injections of artificial serum.

4. If the woman is delicate, the cyanosis not very marked, the attacks not very frequent, chloral should alone be given.

5. Wait until the labor occurs spontaneously and allow it to end without intervention every time that this is possible.

6. If labor comes on spontaneously but does not end, because the uterine contractions are too feeble or too slow, end the labor by the application of the forceps or a version, followed by extraction, if the child is living, or by a *cephalotripsy*, *basiotripsy* or *cranioclasty*, if the child is dead.

7. Before an intervention, wait until there is complete dilatation, or at least a dilatability of the cervix, in order that the operation may be done without danger, that is to say, without violence, and consequently without danger for the mother.

8. Reserve induced labor for a few exceptional cases.

9. Reject, absolutely reject the Cæsarean operation and *accouchement forcé* as current methods in the treatment of eclampsia.

We have not had resource to this

last manner of treatment, excepting in cases unsuccessful by medical treatment, and when the woman appeared doomed to certain death. In a word, as an ultimate resource in a hopeless case.

I had wished, gentlemen, to give you the French statistics, in order to

be able to compare them with the German and other foreign statistics, and thus give my conclusions a more solid basis. Unfortunately the communications that have been transmitted to me by my colleagues are in too small a number and are not sufficiently detailed.

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## REVIEW OF GYNÆCOLOGY.

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### A Plea Against the Meddlesome Treatment of Acute Gonorrhea in Women.

BY MARCUS ROSENWASSER, M.D.

The fact that we have as yet no reliable local treatment and no specific remedy for the cure of gonorrhea does not deter authors of text-books and writers of journal articles from making positive assertions about the rapid cures effected by the "early and thorough" treatment of this disease. Perhaps in no disease does experience more often go counter to such careless and highly reprehensible assertions than in gonorrhea during the first two or three weeks of its course, or in the acute stage. The "early and thorough" treatment, first extensively advocated by our German confreres was based upon a pathology which more recent observation has proven erroneous. Bumm had described the gonococcus of Neisser as a germ living only in the cylindrical epithelium of mucous membranes. Wertheim has since demonstrated the fact that the germ also thrives in squamous epithelium, in connective tissue and on the peritoneum. The vagina has been regarded as the main seat of the disease, and has constituted the chief point of attack in the early

treatment. We now know that it is rarely primarily affected, but serves merely as a catch-basin for the infected fluids that enter from below and for the drippings that come from above. The disease has been described as ascending from vulva to vagina, hence to the cervix, and so on. Following the *modus operandi* of the sexual act, it becomes apparent that with the completion of the act the vulva, vagina and cervix have been simultaneously exposed to infection, and that the spreading "up the vagina to the vaginal portion of the cervix" is a theory rather than a condition. A modern author proposes to cure the gonorrhea in this catch-basin in two to six days by "constant irrigation." He says it will take a little longer by using a "copious vaginal douche" every two hours by day and every four hours by night. He then continues: "If so much douching is not well tolerated or is not available, the disease can be rapidly cured by the dry pack." Again "the douching, disinfection and packing should be repeated morning, noon and night for the first two or three days, and after that twice a day for a week." He destroys our faith in the cure by the following caution: "Attention should be given to septic urethral and cervi-



cal discharges, or the vagina may constantly become reinfected."

Can there be a greater concentration of brutal energy than is embodied in the original "pack," which is designed literally to skin the vaginal epithelium?

"First of all the vulva and vagina are thoroughly cleansed of the adhering secretion by means of a 1:1,000 sublimate solution; then with the help of a Simon's speculum, the vagina and vulva, including every fold and recess, are energetically swabbed with a dossil of cotton-wool soaked in a one percent solution of the sublimate, and rubbed with it for several minutes, so that the superficial sheaths of the epithelium containing the gonococci are removed. The Simon's speculum, or some other with separable blades (such as Bozeman's, etc.) is essential for the purpose in view; by this means it is possible to distend the folds of the vagina to their utmost extent, and to obtain a complete controlling view of the whole process, so as to avoid missing any of the diseased patches. Special care is taken with the introitus, which contains numerous folds.

"The next step is copiously to dust over the vagina and vulva with iodoform, which is still more effectively applied by rubbing it into the mucous membrane with the tip of the finger.

"To complete the process, the vagina is with moderate firmness packed full of iodoform gauze.

"If the treatment is very painful, a thing which depends upon the intensity of the disease process, and the idiosyncrasy of the patient, a narcotic or anesthetic must be administered. The process is of value only when thoroughly carried out, but then it is certain to succeed.

"If, as is usual in rubbing the vagina, there occurs extensive capil-

lary hemorrhage, it is only a favorable sign, inasmuch as it shows that at the bleeding points the diseased epithelial covering is for the most part removed, and at the same time, a large number of superficial, perhaps diseased, capillaries are destroyed.

"The iodoform gauze is permitted to remain for three or four days, and then the whole process is repeated with the same thoroughness and over the same area. After four or five days more the gauze is finally removed, and then, for eight or fourteen days, the patient carries out a copious irrigation of the vagina with a sublimate solution of 1 in 2,000. The vagina is red and raw after the second tampon has been removed, and there is usually a copious purulent discharge, but the gonococci are annihilated, and have forever vanished." Sinclair's chief objection to the method quoted is "not so much its insufficiency as its severity."

The present method of rapid cure may vary in degree, but not in kind. The experience we have gained and the light we now have seem to me to warrant the abolition of this refinement of cruelty, and to justify the substitution of milder or more rational means.

It is generally conceded that gonorrhea is a germ disease capable of producing inflammation of mucous membrane, connective tissue and peritoneum; that like other infectious diseases, it is self-limited; that transplantation upon new soil reinvigorates the enfeebled germ; that in mild cases under favorable circumstances, such as rest, and protection against irritation or reinfection, it runs a course of four to six weeks; that its chief habitat is the urethra, cervix and Bartholinian ducts; that it is rarely located in the vagina, except its membrane be delicate, moist and succulent,

as it is found in children, virgins, pregnant and aged women; that it may simultaneously invade the entire genital tract and thus cause a pelvic peritonitis shortly after infection, and that peritonitis due to the gonococcus is adhesive, not suppurative.

Leaving out of present consideration cases with delicate vaginal lining, the parts of the sexual tract simultaneously infected are the vulvar entrance, including the urethra and the Bartholinian ducts, and the cervical canal. The sphincter muscles at the neck of the bladder, and at the internal *os uteri*, are the natural barriers against the immediate introduction of germs into bladder or cavity of the uterus. If these sphincters happen to be relaxed, the infection can at once gain entrance into these organs. At first the gonococcus only penetrates into the surface epithelium. After a time upon irritation it becomes more virulent, and it lodges deeper. It is liable to forcible transportation by all manner of mechanical means, whether it be douche, finger catheter, or sound. From the moment of infection the living tissues are engaged in resisting the invasion. Unless this reparative process be frequently disturbed, or the power of resistance be constitutionally insufficient, the vital forces will in about fifteen to twenty days have successfully thrown out a wall of limitation, or line of demarcation, beyond or beneath which the advance of the infection is stayed. This contact wall becomes gradually accustomed to the presence of the germs, which thus lose their former deadly effect, and themselves become exhausted for want of new supplies of favorable soil. The premature removal of protective, living covering, be it epithelium, lymph, mucus, or leucocytes, opens up non-resisting

avenues for infection, and furnishes new food to invigorate the exhausted stock. Any treatment therefore, which does not, and cannot remove or kill all the germs, but does remove tissues that have become immune, weakens the resisting power of the remaining tissue, and thereby strengthens the remaining germs, besides supplying them with fertile soil for rapid reproduction.

In the treatment of acute infectious diseases we place the patient at rest, and surround him with the safeguards of diet, bowel movement, cleanliness, protection against reinfection and prevention of all possible, harmful influences. The contest between germ and life-preserving forces ends with the death and elimination of the germ and its toxic products. Only complications, or cases that pass into the chronic stage require local treatment. Why not follow the same principle in the treatment of acute gonorrhea?

In cases seen very early urethritis is nearly always present. The usual "early and thorough" treatment does not apply to the urethra, and yet it is this untreated canal which gets well quickest, chronic urethritis being comparatively rare. In most cases seen later urethritis is not present. The symptoms have disappeared before the patient is aware of any serious trouble. The frequent voiding of urine keeps the urethra clean. Whether its chemical quality plays any part in the rapidity of the cure is still unknown. Again, the Bartholinian ducts cannot well be included in the "early and thorough" treatment on account of their inaccessibility. They either get well spontaneously, or become chronic.

The vagina and cervix constitute the great battlefield, upon which are concentrated all the squirtguns and other deadly weapons, including the

noxious fumes of iodoform, to be used in the "early and thorough" extermination of the gonococcus. As stated in the premises, the vagina is rarely infected. Our energetic belligerents had, therefore, better keep their powder dry and in reserve for the exceptional cases. The cervix then is the citadel to which they must lay siege in downright earnest. The subtle enemy has meanwhile retreated into the various subterraneous crypts and dungeons of the citadel, whence our friends will find it no easy task to dislodge, or smoke him out. If they persist in pressing him too closely, they will find to their dismay that he will withdraw into the dome of the fundus, or even into the very pavilion of the tube, and there, rather than surrender, he will fire the magazine and bury himself and his tormentors under the ruins. It were better strategy to starve him out by cutting off supplies, than to drive him to desperation by assault. Let us cease fighting windmills and riding hobbies.

If the vulva alone is infected, the local treatment may be limited to frequent washing of the parts with weak solutions of boric or carbolic acid to keep them clean and to relieve the burning and itching. If, as is most often the case, the cervix is also affected, the vaginal portion is gently wiped with absorbent cotton, and the upper vagina is filled with powdered boric acid every second or third day. Sexual relations are prohibited. In cases of vaginitis with much pain and profuse discharge we must put the patient to bed. Keep external parts clean and relieve pain with opiates. Upon subsidence of the acute tenderness of the entrance to the vagina, non-irritating, cleansing douches, or the dry treatment with powdered boric acid may be given to diminish the amount and virulence of

the discharge. Not until after the disappearance of acute symptoms is it advisable to begin more active, local treatment, if any be needed. In pregnant women infected at term, the additional precaution of thoroughly washing the vagina with soap, and disinfecting with carbolic acid or creolin at the onset of labor is indicated, just as is done in preparation for any vaginal operation. It goes without saying that the cervical canal be left undisturbed for a time. Local treatment for acute endometritis or salpingitis is of no value and is too dangerous to be indulged in for pastime. The application of general principles in their treatment will suffice.

In conclusion the so-called "early and thorough" treatment is to be condemned as meddlesome and mischievous for the following reasons:

It is based on a pathology now discarded as crude and imperfect.

It is not applicable to all the tissues simultaneously affected, hence it is no cure.

The results at the end of the acute stage are no better than are those of a more rational though less exacting treatment.

It is cruelly painful and often dangerous, requiring an anesthetic for its proper execution.

It is impracticable even in the hands of an expert.

Though the treatment is irrational, inefficient, severe and dangerous, the physician who does not practice it is stigmatised as old-fashioned, negligent and indifferent to the interests of his patient. (*Cleveland Journal of Medicine*, Aug. 1896.)

#### Medico-Legal Aspect of the Gonococcus.

BY A. RAVOGLI, M.D.

The physician is often called in-

to the courts to testify, and to enlighten the magistrate, on questions concerning gonorrhœal infections. As long as the doctrines of Ricord were accepted in the schools, that blennorrhagic urethritis could follow from contact with any simple case of leucorrhœa, or from diathetic disorders, and that no specific germ existed in the gonorrhœal secretion, there was no physical characteristic on which to support the diagnosis and give to the court a positive basis for judgment.

Since the discovery by Neisser of the gonococcus as the specific germ of gonorrhœa, we have positive methods to prove the existence of this affection. The presence of the gonococcus in any secretion will give us a proof that the disease is from gonorrhœal origin, and therefore it is the result of the application of the gonorrhœal pus on the mucous membrane.

We can consider, therefore, the presence of the germ in a medico-legal question as the presence of the poison in a case of poisoning. I have heard physicians often say that the presence of the gonococcus is a very poor proof, but when we consider the practical point of view we can say that it is better proof than that of the finding of the poison in a case of poisoning. In the latter we find the proof of the deed without revealing the author of the crime, while the gonococcus not only gives us the certainty of the nature of the disease, but it may also reveal the identity of the criminal.

It is a very important point to insist upon to make the microscopical examination of the secretion of all cases of gonorrhœa. This is a great guarantee for the patient as well as for the physician. Although in an acute case of gonorrhœa the symptoms are so clear that it seems impossible

to doubt, yet I find it to be a necessity to make a microscopical examination, and establish our diagnosis on the physical basis of the presence of the gonococcus. This will save us from the possibility of any rebuke, especially from patients of the fair sex. Moreover, as we do not know in one of these cases what the consequences may be, it is much better to have the proof in our hands. From the symptoms we can say that the disease is like a gonorrhœa, but we cannot maintain before the court that it is such when we have not found the germ, which in this case is the *corpus delicti*.

In men and more often in women, serous and muco-purulent secretions occur from the urethra or from the vagina, secretion due to an irritative cause, and it can easily be mistaken for gonorrhœal trouble. In these cases the microscope only will put us in a position to decide with certainty on the nature of the affection. In some cases the honor and the happiness of a family may be involved, and before giving our judgment we must be sure of the presence of the gonococcus.

In this regard Neisser, in his "Forensische Gonorrhœ Fragen," refers to a case of a gentleman who, after the return of his wife from a trip, was affected with urethritis, which had all the characters of a gonorrhœal urethritis. The secretion, however, in the man as well as in the wife, never showed the presence of the gonococcus. This removed all suspicion of infection, and some previous sufferings of the man with an old stricture afforded satisfactory explanation.

The question may arise as to how far we can believe the microscopical results. There is no doubt that a man may have been affected with gonorrhœa a few months previously,



and yet at the time of examination no gonococcus can be found in the secretion. But when we find gonococci and we can demonstrate them, the gonorrhœal infection cannot be denied. It is true that in the vaginal mucus other cocci and also diplococci can be found which can mislead us, but the gonococcus has enough characteristics to be easily recognized. The gonococcus is readily stained with almost all basic aniline dyes, fuchsin, methyl-violet, gentian-violet, methylene-blue, etc., and is easily decolorized with alcohol, acids, or Gram's method. Every one knows the way of preparing the pus and staining for the demonstration of the gonococcus. They are found in little colonies in the epithelial or lymphoid cells, and also free in the field. The epithelial cells are seen in great number at the beginning and at the declining of the gonorrhœal process, while at the height of an acute attack the lymphoid cells are mostly present. The Gram method will be of some help in a dubious case, for other diplococci retain the blue stain after the decolorization, while the gonococci are entirely decolorised.

I do not think it necessary to enter into difficult bacteriological questions, which render the argument more complicated without throwing any light upon the subject, but I insist only upon the principal point, that the gonococcus of Neisser produces gonorrhœa. Its peculiar appearance is easily recognized, with a strong microscopic power, as a micro-organism kidney-shaped or like a coffee-bean. They occur usually in pairs, lying closely together with their flattened surfaces. As their multiplication takes place by splitting in two, so they form groups, which fill up the pus cells. When we find in any purulent secretion the gonococci with the characters above mentioned we

will not hesitate in establishing our diagnosis as gonorrhœa. It would be very wise for the physician after this examination in cases where legal questions may arise, to preserve the specimen with the name of the patient, that in any possibility he may have the proof of his diagnosis.

In my experience not long ago I was called in a case of a divorce suit. The husband had been afflicted with acute rheumatism, which, after some time, remained circumscribed to the left knee-joint. The peculiar and rather slow course of the affection suggested to me the idea that it was a gonorrhœal rheumatism. From inquiries I found that the patient had abundant discharge from the urethra, which, examined under the microscope, revealed the presence of gonococci. The wife was complaining of pain in the lower abdomen, in the groins, and in the upper portion of the thighs and of the lumbar region, with mild vaginal discharge. The secretion of the vagina contained also gonococci. There was no doubt as to the nature of the disease. The question was on the priority of infection, as the husband was incriminating his wife and the wife was incriminating her husband. In the court I was obliged to admit the nature of the disease. The question, however, remained as to who had been the first to be infected.

Before continuing in our investigation I find it my duty to make a few remarks on the time which elapses from the time of the infection to the development of the symptoms of gonorrhœa. It is usually stated that the period of incubation of gonorrhœa is from one to fourteen days, but we find cases, especially in woman, where it is very difficult to establish a time from the infection to the appearance of the symptoms.

There are cases of gonorrhœa in the woman which last for a long time with entire absence of subjective symptoms. We often, in the examination of prostitutes, find some one, feeling well, protesting to be well, who, under the examination, shows endocervicitis, abrasions of the ostium, slight discharge, which, under the microscope, reveals the presence of the gonococcus. They are infected no body knows how long; they have no sufferings, they believe themselves to be well, and no body knows how many have been infected.

The difference in the time of the appearance of the subjective symptoms has a great deal to do with the anatomical parts which have at first been affected. If the gonorrhœal process remains limited to the cervix or to the ostium of the uterus, the disease may be concealed for a long time, until it spreads further. When the urethra is the first place of infection then the subjective symptoms appear more readily, and in some cases they are very accentuated, like burning sensations, frequent micturition, pain in the ostium vaginae, etc. In other cases, however, the symptoms are so mild that, with the exception of some uneasiness and some dampness of the genitals, nothing is felt; these cases also for some time remain unobserved. It was believed that these were only the result of an infection from a chronic case of gonorrhœa, when the gonococcus has lost some of its virulence. This view, however, cannot be maintained when we see in our experience cases of acute gonorrhœa as the results of infection from a chronic mild case of no apparent importance, or from a woman who, from the macroscopic inspection, seemed to be entirely well.

From the above considerations you will see that it is a dangerous task

for a physician to give his opinion in the case referred to, or to establish who of the two patients had been the first to take the infection. I think that this question has to be left in the hands of the magistrate, and to be resolved by the circumstantial evidence. The duty of the physician in court is limited to testifying on the physical evidence. All that he has to establish is the physical fact. The judge wants to know the kind of disease in question, and he has no right to ask further. In a case of poisoning we demonstrate the poisoning, but we are not compelled to find out who has administered the poison. In a case of a wound we have to establish whether it was a cut wound or a perforating wound so as to compare it with the instrument which has been the cause, but this does not imply that we are to find the party who has inflicted the wound. In the same way the gonococcus is of a great legal value, establishing the kind of disease. In some cases it will lead to the discovery of the perpetrator, as, for instance, if a young girl recently deflorated shows symptoms of gonorrhœa, and we find gonorrhœa in the supposed perpetrator, it will be a great argument against him. But we will not go too far and play the role of the detective, which does not belong to us.

The negative result of our examination does not exclude the possibility of a previous gonorrhœa. The question may arise whether a woman five or six months ago could have had suffered with gonorrhœa? When under the microscope we find gonococci, although in very small quantity, the question is very easily solved. But when no gonococci are present this does not exclude the possibility of a previous gonorrhœa, and in this case our answer will be strictly limited to

our findings without theories.

In regard to the cultures of the gonococcus for medico-legal purpose, I do not believe that they can deserve much consideration. If the gonococci are abundant we see them so easily under the microscope that every physician is able in a few minutes to prepare a slide and recognize them grouped in colonies in the cells, or free as described. But when we cannot recognize them any more, as in some chronic urethritis, and we must resort to the culture, then it is rather a difficult matter, and often the result is dubious. In the mucus of a chronic urethritis we find many bacteria, which vegetate much more easily than the gonococcus, and the resulting culture very often consists of different bacteria. The culture, therefore, would be rather a weak argument, and the magistrate could not accept it as a sure sign to establish the diagnosis of this disease. Therefore, the microscopical investigation remains as an indisputable proof of the existence of the gonorrheal process. As mentioned above, the absence of the gonococcus is not a sure proof that a gonorrheal process could not have existed, but when we find the gonococcus there is no doubt that infection has taken place.

In regard to the way the infection has been effected, this is a great question, which demands the serious attention of the physician. In some cases gonorrhea may be transmitted accidentally. I had in my practice a lady affected with acute gonorrhea of the urethra and of the cervix by mere accident. She felt indignant when I told her my diagnosis, and denied any possibility of contagion. She was rooming with another lady, and the problem was easily solved when finding her room-mate affected with gonorrhea, who had used the

syringe of the other for purpose of the vaginal douche. I have seen several cases of acute gonorrhea in little girls, where no criminal offence had ever taken place, and the transmission of the contagion remains still a mystery. In my clinic in the Cincinnati College of Medicine and Surgery no longer than one year ago a Russian woman brought two daughters, one aged six and the other four, affected with acute gonorrhea. The examination revealed the hymen to be intact, and no signs of violence could be found with the exception of the redness caused by the inflammatory process. The mother denied any possibility of contagion, stating that the children had been always with her. The eldest child, who could have given some light, denied any violence and any approachment capable of transmitting the infection. In another family in my private practice a little girl, three years old, was affected with gonorrhea, the secretion being full of gonococci. The child had always been with her mother. There were no traces of violence, and yet the disease was there. For what concerns gonorrhea in children we must be very careful before declaring it as the result of a criminal attempt.

In the Children's Hospital of Altona Dr. W. \*Fisher found nearly fifty children affected with gonorrhea of the genitalia. Of this number ten had been infected outside of the hospital; the remaining were affected inside of the hospital. In only one case had there been an attempt at criminal assault; in the others the mother or eldest sisters were suffering with gonorrhea. In one other case the soiled board of a public water-closet in a saloon was believed to have been the cause.

\* "Ueber Kindergonorrhoe," Deutsche Med. Wochenschrift, Berlin, No. 51. 1895.

From these observations it can be easily inferred that the gonorrhœa in children is transmitted very seldom by criminal attempt, but in most of the cases the origin can be traced to members of the family, to servant girls, or other parties living in the house. For this reason gonorrhœa among children has been found as endemic or epidemic in families, boarding schools, hospitals and villages as described by Fränkel, Sennander, Sängcr, Ollivier, Suchard, v. Dusch, Skutch and others. The way in which the contagium was carried has not been found. In the hospitals the bed linen, the towels, the sponges, the bath-tubs, the vessels, the water-closet, and more particularly the thermometer have been considered as carriers of the contagium. The cases were more frequent among small children than in grown children, the greatest number being between one and two and a half years old, less between three and five, few between five and ten, and only one case in a girl more than ten years old. In male children accidental gonorrhœa of the genitals is extremely rare, and very likely the cause of the frequency of gonorrhœa in female children may be due to the tenderness and to the delicacy of the mucous membrane of the vulva. The general condition of the girls has nothing to do with the gonorrhœal infection, as the best nourished were affected like the badly nourished children. The inflammatory symptoms are very intense. The urethra and the vagina are usually affected at the same time, and the hymen appears red and swollen. With some little pressure on the perineum purulent matter in two or three drops can be squeezed out of the vagina. Fisher, in fifty children, found some fever in forty in the first days during the acute period. The subjective sufferings were not much,

and in my few cases I remarked that the children were playing, showing no signs of pain. Treatment has good effect, better than in the adults, and relapse is not so frequent.

I have dwelt some time on these considerations, so as to impress the fact that the gonorrhœa of children is rather frequent, and only rarely is the result of a criminal attempt. In most of the cases the transmission of the contagium is accidental, by linen, by sponges or by the hands.

In the treatment of prostitutes I consider the presence of the gonococcus as the most important reason to detain them in the hospital. In that class of women not rarely we find slight discharge from the vagina, or from the uterine canal, or from the vulvo-vaginal glands, following sometimes a long standing gonorrhœa, or from irritative cause. In my service the secretion from the vagina is carefully examined under the microscope, and when no gonococci are found douches with an astringent solution are prescribed, and the woman is soon discharged. When gonococci are present the woman is kept in the hospital, and as long as the gonococci are found in the secretion so long she must stay under treatment.

I wish to mention in connection with this that often the macroscopic examination does not show any morbid condition, and yet the microscope still reveals the presence of the gonococcus, and nearly one week after pursuing the treatment no more gonococci are to be found. The woman discharged after this time, when no more gonococci appeared in the mucous-vaginal secretion, never had relapse, unless a new infection had taken place. This happens in the generality of the cases. We have, however, very obstinate cases, where either the endometrium has been affected or the glands, etc. In these



cases, when the woman is much improved for a few days we do not find gonococci, which, in consequence of a spontaneous relapse, are liable to make their appearance again. Fortunately, these cases are not very frequent, but when they happen the treatment lasts for a long time, and very seldom do we obtain a perfect recovery, unless we resort to the curetting of the womb.

You will see that the gonococcus is for us an argument to compel these women to remain confined in the hospital. It will appear an arbitrary measure to confine these women against their will, depriving them of their personal liberty, but we must consider them as dangerous elements of society for spreading contagious diseases. Prostitution must not only be looked at from a moral standpoint, but must be regarded as a danger of spreading infectious diseases. Society has, therefore, a perfect right to protect itself against the spread of these diseases, and I think that the surveillance of persons dangerous to society, and their examination with a view of preventing the spread of contagium, should be necessarily used in the interest of the community. The measures to combat the spreading of venereal diseases have been so far insufficient, but it would be absurd to discontinue them. Two measures at least ought to be insisted upon from suspected persons, a certificate of freedom from disease and the isolation of diseased persons from the others.

I will not enter into the question of prostitution, which is entirely out of my subject, but I mentioned this only to show that the presence of the gonococcus gives legally the authority to detain an infected person so as to prevent the spreading of the gonorrhœal infection. (*Cincinnati Lancet Clinic*, Oct. 10, 1896.

### Report Of Two Fatal Cases Of Hæmaturia, One In Male, From Spinal Injury, Traumatic; One In Female, From Primary Epithelioma Of Trigone Of Female Bladder, Pathological.

BY THOMAS H. MANLEY, M.D.

It is well-known in Genito-Urinary Surgery that the sources of hæmaturia, are exceeding numerous, and, that it is a symptom of a vast number of various pathological conditions along the urinary tract. It is seldom however, that mortal exsanguination directly follows from it, inasmuch, as we are usually able to control or moderate it, by appropriate measures.

But, one case of it has come under my care in the male.

The patient was a vigorous, young man, a carpenter by trade, who had fallen from a staging, about forty feet and fractured the body of the second lumbar vertebra. When he entered the hospital, he was wholly paraplegic.

Shortly afterward, the house-surgeon noticed that there was a marked distension in the hypogastrium, and watery blood was trickling from the urethra. In the meantime the patient was deathly pale, with a thready flickering pulse, but, whether this was dependent on shock from the injury or the loss of blood, was doubtful.

A catheter of large calibre was now introduced into the bladder, when an enormous quantity of urine, thickly mixed with clotted and pure arterial blood issued through. In fact, fresh warm blood continued to flow away, after the urine was evacuated. Acids, acidulated drinks and stimulants were given, the bladder washed out with astringent solutions and ice applied over the loins.

The bladder soon filled again, and unknown to the patient the discharge of blood re-commenced from

the penis. The house-surgeon now "rattled" tied a string around the root of the penis and sent for me. About an hour later, when I arrived, the patient was near the moribund state. The bladder had distended again, so that its summit reached the umbilicus. Over the region of the left kidney there was a tumor, fairly well defined, that produced a distinct bulging.

It was now evident, that there was an extensive renal laceration of the cortex. It was evident too, that his only hope now lay in an immediate nephrectomy.

It was a serious question, though, if he now could survive this operation, which in his sinking condition, might be impracticable, without serious consequences. After the various aspects of the case were submitted to him, he declined to undergo it. It was fortunate that he did not, for he soon showed signs of approaching death and sank six hours later. His family peremptorily denied us the privilege of an autopsy.

This case now on the records of Harlem Hospital, was entered on the 5th of November, 1892, in the surgical division, then in the immediate charge of Dr. Frank Hammond, the resident house-surgeon, and is recorded here, as a contribution to the literature of fatal traumatic hæmaturia, of a renal origin dependent on spinal fracture.

The woman whose case will now be related, succumbed, from hæmaturia of pathological origin, in the bladder. She had cancer. In the vast majority of cases of cancer when the growth does not start from, or impinge on some tubular structure, the integrity of which is essential to life, pain, loss of rest, etc., tend to shorten life, but, in the minority of cases, copious and oft-repeated hæmorrhage does the fatal work of

devitalization. In this case it did it with surprising swiftness.

On the morning of February 5th this year, called in consultation to see a woman of Scotch birth, medium size, rather spare build; she was 61 years old, a widow, who had given birth to seven children, at term.

There was no history of malignant disease in her family, and she herself, had always enjoyed fairly good health, up to the present time. For about two months before, she had experienced more or less smarting in the bladder on urinating, and lately, had more or less straining and tenesmus, after voiding her urine.

Until the evening before, she was never aware of having passed blood in micturition. She had called the doctor because in yielding to a desire to urinate, she had passed but a few drops, when the flow ceased, and this was soon followed by the most acute vesical distress. The doctor on catheterization evacuated more than a quart of urine, loaded with clots, and intermixed with bright coloured blood. This brought immediate relief. Three hours later, at 11 o'clock, he was again hastily summoned to her for further aid: as she was again suffering from the same *ensemble* of symptoms.

This time the quantity of urine drained away was less, but was so thickly intermixed with blood-clots, that it was with difficulty conducted through the catheter.

At 2 and 7 o'clock, again, in the morning, he was called. On each occasion the intensity of distress augmented and the proportion of blood became greater.

When I saw her at 10 o'clock she was of a chalky white, she had cool extremities and was greatly exhausted. Her constant complaints were, thirst and an incessant desire to urinate.

On examination, there was nothing elicited that would indicate the kidney as the source of the bleeding. She was therefore prepared for an exploration of the genitals and bladder. On inspection the atrophied vagina was dry and clean, but the orifice of the urethra, between the closed rugæ, was streaked with shreds of a blood-clot. Now, passing the index-finger into the vagina, with the pulp upward, a hard, knotty ridge of tissue was come on, which occupied the vesico-vaginal septum and encroached well forward, toward the meatus. It was narrow forward, but widened as it extended posteriorly. It obliterated the circular plicæ of the vagina and in the centre bulged downward. Moderate pressure on any part of it gave rise to severe pain, and provoked a desire to urinate.

The uterus was atrophied, but freely mobile, and on bimanual palpation, there was no evidence of implication of the broad-ligament, tube or ovary, on either side.

A catheter was then introduced, but became clogged, when it was necessary to moderately dilate the urethra, and draw away with a dressing forceps several tough, stringy masses of clotted material. Again, the large catheter was introduced when nearly a quart of bright red, semi-fluid sanguineous substance was drained off.

It was clearly evident, therefore, that we had a case of cystic schirrus, before us, which had undergone deep, central ulceration from the inside; in its march, cutting through some of the larger divisions of the inferior and middle vesical arteries.

In vesical bleeding from the vesical capillaries, the urine itself often serves as a hæmostatic of ample efficiency, but in the event of a large bleeding this action is not enough to suppress it.

When we came to discuss the most appropriate therapeutic measures, in this case, the patient in most emphatic terms refused to submit to operative measures.

In my opinion, as stated at the consultation, the proper course to follow was, to perform a supra-pubic cystotomy, and by this route attack the ulcer. From the limited localized and superficial situation of the growth, a successful operation for its complete excision through vagina and supra-pubic incision seemed to be perfectly feasible; after which the base of the bladder might be hermetically sealed, the urine being drained off from above, until union is complete.

It is well-known that the peritoneal reflexion over the bladder is lower down, and the space of Retzius is much smaller and less defined in the female than in the male adult. In a case of cancer, which had swept away the uterine cervix and in which infiltration had choked up the meatus, coming under my care two years ago, on recommendation of Dr. G. A. Lawson of this city, in a lady of 62 years, no difficulty was encountered in establishing an artificial urinary passage, through the abdominal walls, by this anatomical arrangement, and vast relief was afforded, for six months, when metastatic generalization cut her off.

In the case under consideration no description of operation would be listened to.

During the next twenty-four hours, the bladder was catheterized six times; on each occasion, blood coming away in great quantities.

On the morning of the 2nd day following, she commenced to sink and died shortly after the noon hour.

A *post-mortem* examination of the body was denied.

*Urinary Analysis.*—On the morn-

ing when called. I was enabled to secure a considerable quantity of the urine for analysis.

By a most critical examination, chemically and microscopically nothing was found to indicate renal disease. Among the clots many large compact shreds of bladder tissue was found. These were prepared for sections, to be examined. Under low power it was seen that the proliferation had extended deeply into the smooth-muscle fibres near the neck of the bladder, including the vascular elements.

With higher power, the deep ingrowth of the epithelia and nuclei was seen, with great distinctness. In places, nests of epithelia were found in abundance. Its morphological elements thus clearly stamped the case as one of vesical epithelioma. (*Indian Lancet*, April 1, 1896).

### Two Cases Bearing upon the Diagnosis between ruptured Tubal Pregnancy and Ruptured Pus Tube

BY M. ROSENWASSER, M. D.

From the point of view of the practical surgeon, facing the emergency of a rupture in the pelvic cavity, it may make very little difference whether a pus tube has emptied its contents, or whether an impregnated tube has broken and is causing free internal hemorrhage. The necessities of the case are the same in either event. To insure the safety of the patient the diseased and damaged tube must be removed and the free pus or the free blood in the abdomen must be washed out at the earliest possible moment. Delay at such a time for the purpose of an exact diagnosis may turn the scale from the side of comparative safety to that of fatal disaster.

An attempt at an approximate diagnosis, however, is not inconsis-

tent with promptness of action. The presence or absence of certain salient features may assist materially in the formation of a correct conclusion. Even if such conclusion is not essential, it is the aim of every scientific physician to make as accurate a diagnosis as the history and symptoms of the case will warrant. As will be seen from the title of this article, the two cases reported are intended to exemplify what has been said, as well as to emphasize the importance of early surgical interference without regard to differential diagnosis.

Case 1.—Ruptured tubal pregnancy. Free hemorrhage. Operation. Recovery.

Mrs. T., aged 26, was seen May 17, 1894. Mother of an only child, five years old. Enjoyed good health and was always regular, having menstruated last on March 22. Failed to "come round" April 19, but continued well until May 13. At 2 p. m. sudden attack of steady pain, as though her "ovaries, bowels and rectum were being pulled out," continuing four or five hours. A second similar attack the following morning with a slight "flow." The third attack this morning (May 17), with marked changed appearance. Face pale and pinched; mucous membranes blanched; abdomen distended, tender, cervix soft; indistinct, soft mass in the left pelvis, slightly tender; pulse, 112 T., 100 deg. Diagnosis, ruptured tubal pregnancy with free hemorrhage. Immediate operation advised.

Operation at 10:30 a. m. On section, fluid blood welled up out of the incision. The left enlarged tube and ovary were secured and ligated. A quart of liquid blood and a pint of clots were washed out by flushing. The diseased appendage was enlarged at the proximal end to the size of a walnut and was ruptured in two



places. No fœtus was found. The right appendage was normal. Recovery was uneventful.

Case 2.—Ruptured pus tube. Free pus in the pelvis. Operation. Recovery.

Mrs. C., aged 25, seen August 2, 1896. Married five years; never pregnant. Subject to cramps half a day during each menstruation. Excepting some vague neuralgic trouble in the hypogastrium, which lasted three months and for which she was curetted in Chicago about three years ago, she has enjoyed good health. Her last regular menstruation ceased July 17. July 19 she noticed a profuse purulent vaginal discharge. July 20 was taken with severe, colicky and "neuralgic" pains in abdomen, especially intense in the left groin. July 22 bloody flow from the vagina for half a day. Well and about for a week. July 29 bloody vaginal discharge for 24 hours. At 8 p. m. August 1, taken with agonizing, colicky pain in the left side of the abdomen, followed by collapse—cold extremities, pallor, small, rapid pulse. At the time of consultation she was easier, under morphine, and had somewhat rallied. Pulse, 108; T. 101.5 deg.; features pale, but not blanched; abdomen distended and tender. On account of loaded rectum, the pelvic examination was postponed until 9 a. m. and was made under chloroform. Cervix large; uterus enlarged, slightly anteflexed; enlarged ovary low down in the cul-de-sac; a moderate sized, resistant, indistinct mass in the left pelvis. Pulse 96 T. 99.5 deg. Removal to hospital and operation advised.

Operation at 4 p. m. Incision two and one-half inches, showed a peritoneum slightly injected. The gentle introduction of two fingers back of the uterus was followed by a welling up of a dirty, yellowish, somewhat

offensive, pus. The left appendage was enlarged, thickened and adherent to the corresponding side of the pelvis. Carefully enucleated and brought out of the incision, it was found that the distal end of the tube had undergone ulceration and had ruptured. The tube was distended to the size of a lemon; its wall was three-eighths of an inch thick; the mucous lining was corrugated and resembled the vaginal mucous membrane rather than that of the tube. The ovary was cystic. The right appendage apparently not diseased. After removal of the diseased appendage, the abdomen was flushed and drained. At the time of operation the pulse was 108, T. 101.5 deg. After the operation the pulse and temperature rapidly dropped to normal and the patient made an ideal recovery. This case had been diagnosed as one of ruptured tubal pregnancy when I was consulted. The similarity of the symptoms in both cases is striking, and yet a careful comparison will develop sufficient points of difference to throw a doubt on such diagnosis. A menstrual period had been missed in the first case; not so in the second. In a presumptive extra-uterine pregnancy the missing of one or more periods counts strongly in its favor. If this link in the chain of evidence is missing I do not make a positive diagnosis. There was a difference in the character of the mass in the pelvis, though the gentleness with which palpitation must be made, precluded delicacy of touch. In the first case the mass felt elastic, resilient; in the second firm, resistant. The appearance of the mucous membranes in the first case was blanched, exsanguinated; in the other only pale. These apparently slight discrepancies, together with the history of a curetting performed for some painful pelvic trouble three

years previously, led me to suggest that a ruptured pus tube could not be excluded in the diagnosis of the second case. The operation proposed was therefore exploratory, with the understanding that further surgical procedures would depend upon the conditions found in the pelvis. It is evident that should we meet with like conditions on the right side, the vermiform appendix would become an additional element for differentiation. (*American Journal of Surgery and Gynecology*, Oct., 1896.

### An Instructive Case of Labial Cyst.

BY R. M. STONE, M.D.

On August 1st, 1896, I was requested to examine Miss A., who gave me the following history; Some two weeks prior she began to have a feeling of uneasiness in the left labium. Soon there was some swelling and a little pain. She described the swelling as never having been solid, always puffy as if there was gas in it, and stated that it disappeared upon her lying down up to two days before I saw her, and that during these two days she was always able by manipulation to cause it to disappear. There had been neither heat nor redness at any time. While I had never had the fortune to see a labial hernia, here seemed to be a typical one from verbal description. Upon examinations I found in the labium a tumor the size of an ordinary egg, free from tenderness, not unduly red, puffy, semi-fluid in consistency, but not gaseous in feeling. While I had examined many cases of labial abscess I had never met with one having the peculiar feeling which this had. I was not able by any manipulation to cause it to disappear, although the patient was positive that she had been able to that morning. Since the patient requested anesthesia, at 3 P.M. I placed her under

chloroform before using the knife. Upon making an ordinary incision I emptied the sac of an ounce or more of material of the appearance and consistence of the white of an egg. The sac collapsed; there was no hemorrhage, and I supposed moderate pressure would end it. At 6 P.M. I was informed by telephone that a free hemorrhage had set in, saturating completely three large towels. I went out, found a free hemorrhage still present, controlled it completely by firm pressure with a hard roll of cotton so that when pressure was removed there was no hemorrhage for twenty or thirty minutes. I left feeling secure, but maintained moderate pressure by close apposition of the thighs. At 9 P.M. I was informed of an alarming hemorrhage. I took my friend, Dr. Allison, with me, and we found it necessary to enlarge very materially the incision, pack the sac thoroughly with pledgets of cotton and put on a spica bandage.

We watched it a few moments and found the blood flowing to an alarming degree in spite of this pressure. We removed the bandage and pledgets, and found the blood oozing from the sac walls, sweating out as it were. We tied off some large surfaces of bleeding tissue and at last were compelled to leave two or three artery forceps on where ligatures could not be applied. We again put on pressure and the spica, (and, by the way, a spica most carefully applied exerts very little pressure over a labium). We found in the morning that our energetic measures had at last entirely arrested the hemorrhage. Recovery was uneventful.

The history of the patient showed no bleeders in the family. And the patient had never had any trouble from hemorrhage from a tooth pulled or an accidental cut. The only thing that looked in that direction was once

or twice during her menstrual life she had had very profuse and long continued menstrual flows. Incidentally we found that she had a tender and much enlarged left ovary.

The two matters of particular inter-

est to us are that with a typical description of labial hernia a cyst should be found, and that the hemorrhage should have been so profuse in a case not having any hemorrhagic history. — *Charlotte Med. Journal*, Oct., 1896.

### BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to DR. C. G. CUMSTON, 871 Beacon St., Boston.)

AN AMERICAN TEXT-BOOK OF APPLIED THERAPEUTICS. Edited by J. C. WILSON, M.D., Professor of the Practice of Medicine and of Clinical Medicine, in the Jefferson Medical College, assisted by AUGUSTUS A. ESHNER, M. D., Professor of Clinical Medicine in the Philadelphia Polyclinic. Philadelphia, 1896. W. B. Saunders, Publisher. Price, cloth, \$7. For sale by subscription only.

This text-book is thoroughly good from beginning to end and treats its subject very fully. Usually a treatise of this size is extremely dry reading, but we must confess that we have read many sections of the work and find it easily written and extremely interesting. An excellent point is that formulae have been almost entirely left aside, and we are glad to note this feature, as we consider the usual prescriptions found in books as entirely useless and in many cases harmful. The contributors are all men of note and have been well selected for the special articles on which they write.

TRAITEMENT DE L'AVORTEMENT IN COMPLET. By Drs. CHALEIX VIVIE and AUDEBERT. Paris, 1896. M. Masson et Cie, Publishers.

This very excellent monograph treats the subject of incomplete miscarriage in a very comprehensive and thorough manner. A number of cases occurring in the authors' practice are recorded. Among the principal points to be brought out as original in the book is the authors' apparatus for transfusion by artificial serum and is very ingenious and simple. It is composed of a glass cylinder, 35 centimeters high and 6 centimeters in diameter; its contents are 500 cubic centimeters and it is graduated in 5 centimeters. The upper end is like a bottle mouth, into which a glass stopper is fitted. The tube has a glass stopcock at the end, and beyond this is attached the rubber tubing with the needle. This apparatus seems to be the most practicable and the most aseptic that we have as yet seen.

Regarding the transfusion of serum, the authors advise the following formula, as giving far more brilliant results than the other artificial serums:

Rx.

Sodii chlorid. 5.0

Sodii sulphat, 10.0

Aq. dest. 1 litre.

The technique of curettement is well exposed, as is retention with hemorrhage and infection. We commend the book.

THE SURGERY OF THE CHEST. By STEPHEN PAGET, M.A. Oxon.

F. R. C. S. Surgeon to the West London Hospital and to the Metropolitan Hospital. New York, 1897. E. B. Treat & Co., 5 Cooper Union, Publishers.

The surgery of the thorax has taken on considerable development of late, and the appearance of Dr. Paget's excellent little treatise on the subject is welcome. Although not complete in every respect, the book very well fulfils the purpose for which it was written.

There are a good number of very fair illustrations, and the book is well printed and made up.

FUNCTIONAL NERVOUS DISORDERS IN WOMEN. By T. J. MCGILLICUDDY, A. M., M. D., Consulting Physician to the Italian Hospital. New York, &c. New York, 1896. Wm. Wood & Co., Publishers.

There have been a few books written on medical gynæcology and medical treatment of the diseases peculiar to women, which have their place in medical literature, because every disease to which woman is subject does not necessarily depend upon a surgical affection of the genital apparatus.

In Dr. McGillicuddy's book we find the nervous disorders of women treated in a rather novel way. The author attacks the operating gynæcologist rather severely, and we think that some of the views taken in this monograph cannot be accepted to their full extent. Although we agree with many of the points put forward by the author, we must hold a certain reserve on a number of the statements made within its pages.

The book is certainly well worth reading and commends itself to serious consideration of both physicians and gynæcologists.

THE TWENTIETH CENTURY PRACTICE OF MEDICINE. Vol. VII and VIII. Wm. Wood & Co., Publishers.

Vol. VII of this very excellent work is devoted to the diseases of the respiratory organs, the blood, and the functional sexual disorders in the male and female. The contributors to Vol. VII are as follows: Charles W. Allen, M.D., of Boston, Jules Comby, M.D., of Paris, Charles Greene-Cumston, M.D., of Boston, Ernest W. Cushing, M.D., of Boston, James M. French, M.D., of Cincinnati, E. Fletcher Ingalls, M.D., of Chicago, E. Main, M.D., of Paris, Franz Hiegel, M.D., of Giessen, and Arthur Stengel, M.D., of Philadelphia, and Herbert B. Whitney, M.D., of Denver.

Vol. VIII is devoted to the diseases of the digestive organs and by far the most remarkable article in it and one well worthy of note is that of Dr. Max Einhorn, M.D., on the diseases of the stomach. The other contributors to this volume are as follows: B. Farquhar Curtis, M.D., of New York, Reginald H. Fitz, M.D., of Boston, James M. French, M.D., of Cincinnati, J. C. Huber, M.D., of Memmingen, Werner Kummel, M.D., of Breslau, Hans Leo, M.D., of Bonn, and Johann Mikulicz, M.D., of Breslau.

There is very little criticism to be made on these two volumes, as the articles are all well written and cover their subjects very fully.

ESSENTIALS OF PHYSICAL DIAGNOSIS OF THE THORAX. By ARTHUR M. CORWIN, A. M., M. D., Demonstrator of Physical Diagnosis in the Rush Medical College, Chicago, &c. Philadelphia, 1896. W. B. Saunders, Publisher. Price, \$1.25 net.



This little book is designed to meet the immediate demands of the student, to be a further guide and more elaborate study of the diagnosis as set forth in the existing literature and as furnished in the clinical material of hospitals.

This little manual is very good for what it is intended and may be recommended to the student.

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TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY. Vol. XXI for the year 1896.

As all the former volumes of this publication the present one is excellent in every sense of the word, and we can say without any hesitation that every article contained in its pages is well worth reading and the discussions will be found of the highest value.

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TRANSACTIONS OF THE MICHIGAN STATE MEDICAL SOCIETY FOR 1896. Vol. XII

This volume contains a very large number of papers with their discussion relating to almost every branch of medical science and is decidedly most flattering to the society who publishes it.

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TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK, 1896.

The excellence of the present volume of the Transactions of the Medical Society of the State of New York, cannot be overestimated, the papers on brain surgery are all of the highest character and written by men who are eminently capable of doing justice to the subject of which they treat, as, for example B. Sachs, M.D., Charles L. Dana, M.D., and George Woolsey, M.D.

Abdominal surgery is also thoroughly discussed, as well as various subjects pertaining to obstetrics and gynecology. We commend the perusal of this volume to all interested in the recent advance made in the Healing Art.

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SCIENCE SKETCHES. By DAVID STARR JORDAN. A. C. McClurg and Company, 1896.

Amusement and instruction are blended in this collection of a dozen sketches. The science is of good quality and the information valuable. Agassiz, Refinesque, Poey and others serve as a basis for bright crisp biographies. Botany, biology, geology and travel contribute of their store to make a very readable volume.

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WHAT IS ELECTRICITY? By JOHN TROWBRIDGE, S. D., Rumford Professor and Lecturer on the Application of Science to the Useful Arts, Harvard University. D. Appleton and Company, New York, 1896. Price \$1.50.

This is the last volume, the 75th., of Appleton's International Scientific Series. It contains the present views of scientific men in answer to the question indicated in the title. Underneath is the wide embracing theory that all phenomena of light and heat, as well as those of electricity, are manifestations of electrical energy. The descriptions are in popular language as far as possible, and the illustrations are diagrammatic in the main. Its interest to physicians lies in the easy and convenient way which it opens to us an accurate knowledge of the sources and applications of electricity.





Photograph No. 1.—LILLIAN S., age 4½ months.



Photograph No. 11.—FLORENCE, age 3½ months.

# DEPARTMENT OF PÆDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

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## Editorial

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### PROPHYLAXIS OF DIPHTHERIA.

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In these days when we are reading so frequently of the outbreak of epidemics of diphtheria in Chicago, Boston and other great cities, our minds naturally turn to the consideration of the best means to avoid it. For with all the triumphs of the antidiphtheretic serum it still remains true that the disease is a most terrible one, both in its course, in its mortality and in its sequelæ. For years it has been steadily spreading from one part of our country to another, till now the cities and towns are few indeed where it is not found. So close are the relations of country with town and city, that even there in isolated homes, it not infrequently appears. A few places, perhaps where the ozone is most abundant, like the island of Nantucket, are apparently exempt.

How may we escape it ourselves, personally, how keep it from our families, and how prevent the spread from one case to others of the same family or neighborhood? It oftentimes has seemed to us strange that the attending physician so rarely catches the disease. Exposed he has always been to the flying discharges of nose and throat, and he will still continue to be even with the new serum treatment. Hands and face, beard and parts of the clothing are often spotted with bloody membrane. The germs are there,—must be there in great abundance. Yet rarely is a physician struck down. Of course there are exceptions, sad and long remembered. Why is it that the physician thus escapes? Two reasons seem to us to be large factors in this apparent immunity. The physician having seen all the terrors of the disease and knowing its direct source takes good care to avoid absorbing that source into his system. If he has a scratch on his hand it is carefully covered with collodion ere he begins an intubation, a tracheotomy or even a throat treatment. Are blood or membrane coughed or blown onto his face or beard, he takes the first opportunity to carefully remove it and never forgets its presence. Hands which have become infected are always cleansed and scrubbed and if possible rendered antiseptic. Eternal watchfulness is his motto and need not in any way interfere with his success or faithfulness. Let him be careless of his own personal cleanliness and he will fall as quickly as another. Moreover, the physician has access to large supplies of fresh air. Especially is this true of the country practitioner. Suppose a few germs do still cling to the surface of his skin or to the mucous membrane of his mouth. There is a very strong likelihood that the breezes will carry them away ere they



are able to do any harm. For the protection of the clothing it is always well to wear a special outer loose gown when in the presence of the disease. Not that it will ordinarily make any special difference. But there may come the time when a careless touch or contact with the nasal or oral discharges will work mischief which might have been avoided by this care. Of course it will do no harm to change the whole suit of clothes before returning to one's family. But this hardly seems to us practicable or necessary for the generality of medical men. Thanks to a kind Providence diphtheria is not easily conveyed by a third person.

An early diagnosis is of great importance to all concerned, patient, physician, relatives and friends. This requires an early examination of the throat for clinical evidence. Many dispensaries, as for instance the Boston Dispensary and the Tremont Dispensary, make it a rule to examine the throat of every child no matter what the complaint. Not a few cases of diphtheria have been thus picked out which were before unsuspected. Wooden spatulas which may be immediately burned are the best instruments for dispensary work. Ordinary spoons which shall be at once immersed in boiling water answer every purpose in the home. Such early clinical knowledge is invaluable. Of course, get a bacteriological report if you can but do not wait for it ere you use antitoxin. All statistics show the great advantage of early injection. Other lines of treatment should not be neglected.

Shall the doctor himself seek immunity by an immunizing dose of the serum? We are inclined to believe that this is usually unnecessary. It will however rarely do any harm and in some cases of unusual exposure or virulence should not be neglected. But experience clearly teaches the advantage of immunizing other children in the same family who may have been associated closely with the patient or exposed to the same source of contagion.

Isolation of the patient and his attendants so far as possible, is imperative. Of course, all nasal and oral discharges should be carefully gathered on old rags or cloths and burned. Probably the use of antiseptics cannot be too profuse or general. But beware of relying on them and neglecting cleanliness and fresh air. Keep the patient and everything about him scrupulously clean and allow free excess of fresh oxygen laden air to the sick room. Then will the dishes of corrosive, the sheets wet in carbolic acid solution, the fumes of sulphur or of calomel do only good. Wearied attendants too need to be reminded of the greater susceptibility of an exhausted system and fortify themselves against it. We know no better motto for such than that given us in our hospital experience: "Keep your hands clean, your stomach full and your bowels regular." This does not mean eat all the time but eat before times of greatest exposure. By following the above suggestions we have seen scores of house-officers and nurses safely pass through the exposure of months of continuous daily service of from 6 to 12 hours in diphtheria wards.

## ORIGINAL COMMUNICATIONS.

## A CASE OF CHOREIC EMBOLISM.

BY SAMUEL S. ADAMS, M.D.

The rarity of the case cited below has induced me to report it. While in some respects it resembled *post hemiplegic chorea*, the previous attack of chorea made the differential diagnosis easy, and the speedy and complete restoration to health confirmed the diagnosis.

Arthur D., aged 7 years, 11 months, white, was admitted to the Children's Hospital, June 6, 1896.

His maternal grandfather died of tuberculosis, otherwise his family history was negative.

The boy had been very studious, working well into the night preparing his lessons. He was well prior to February, 1896, when he was taken ill with measles. He apparently recovered from this attack, and while seemingly in good health, during an afternoon walk with his mother, he was suddenly seized with vertigo, photophobia and inability to walk. He complained of no pain. He was carried home and placed in bed when it was discovered that his eyes were crossed. The next day in attempting to walk he was compelled to draw himself from one piece of furniture to another. This muscular inability grew worse and finally he had to be carried from place to place.

**PRESENT CONDITION.** In general appearance well developed but slightly anæmic. Sleeps more than usual, is very sensitive and cries without any apparent cause. The pupils respond promptly to light and there is no inequality, but internal strabismus of the right eye is pronounced. The left angle of the mouth droops, and when the tongue is protruded it deviates to the left. Articulation is slow, indistinct and nasal, but questions are answered intelligently. There is ptosis and paralysis of the left facial muscles. The right arm is normal: but in the left, however, there is neither motion nor sensation of ordinary touch, but a pin thrust is felt, and, if a strong irritant be applied to the fingers, he locates it accurately. Reflex motion is only slightly impaired. The left lower extremity is only partially parietic but seems to be increasing. The patella reflex is slight on the affected side and there is no clonus, but there is constant formication. There is a profuse sweat at night. Other systems normal.

On June 7th., I examined the patient and discovered a slight choreic twitch on the right side. It was now discovered that he had had an attack of chorea sometime before but had

recovered. The reflexes were absent on the left side, and the surface temperature was lower than on the right. He tried to walk but would have fallen had he not been held up by assistants. I made the diagnosis of choreic hemiplegia. The treatment consisted of good rich food, rest in bed and 3 grains of potassium iodide every three hours.

June 20th. There is no improvement in speech. The strabismus has diminished: he moves the left arm slightly.

The boy steadily improved and was discharged cured, on Oct. 9, 1896.

WASHINGTON, D. C.

## POSTURE IN THE DEVELOPMENT OF THE HEAD OF AN INFANT.

HARRIET E. GARRISON, M. D.

In the discussion which followed the reading of my article, "The Evolution of Girls," at the Atlanta meeting of the American Medical Association, May 5th, 1896, an abstract of which appeared in the *Annals of Gynecology and Pediatrics*, of August, 1896, and the full paper in the *Journal of the American Medical Association*, Nov. 14th, 1896, Dr. Graham, of Chicago, said that he very much doubted if posture could in any way affect the brain of an infant. Soon after my return from Atlanta one of the girls upon whom I had been trying the effects of posture was brought to my office. The mother desired to know if I thought anything could be done to remedy the depression of the vomer and breadth of the nose which marred the child's beauty. I advised that the child's ears, which were protruding, be carefully arranged against the head and she be placed upon her side

when she slept. I have not seen her since but understand she is improved.

The history of the case is as follows: Mrs. S., wife of a wealthy farmer and a very intelligent woman was delivered of her second child Lilian, Nov. 30th, 1895. At her first delivery, six years previous, the child was born before my arrival and, although a small child, had ruptured the first one-third of the perineum. This laceration had partially healed and I was very anxious not to have the perineum again torn, as the pelvic outlet was narrow and the head of good size and in the O. L. A. position. I retarded the delivery by firmly supporting the perineum until the head elongated into the modified wedge shape with the forehead sloping abruptly back from the eyes to the anterior fontanelle which is the normal result of a firm perineal body. The mother and paternal grandmother were very much disturbed







Photograph No. III.—FLORENCE, age 8 months.



Photograph No. IV.—WILLIAM D., age 6 months.

over the wedge-shaped head and the absence of the prominence of the forehead. I assured them that the head would regain its normal shape but they could hasten this by holding the child with the face downward and the forehead slightly lower than the chin every time it was taken from its bed. My directions were vigorously carried out. The increase of space between the eyes and necessary depression of a narrow vomer which is shown in photograph No. 1, taken in the fifth month, while it gives room for more anterior brain development, detracts from the beauty of the face. That this was due to the pronate position, was not credited by me, and the relatives were very ready to ascribe it to maternal impressions as they said the mother's servant girl was a broad, flat nosed German.

But when I saw Florence who was born Nov. 22, 1895, under such nearly similar circumstances to Lilian—mother's second child—after five years interval with the same condition of organs, position and mechanism of labor with same result, I noted correspondingly large eye space. Florence was near my office and I saw her more often than Lilian. I advised the pronate posture but the directions were not carried out until the second week when I was alarmed by the narrowness of the bi-parietal diameter with elongated mento-occipital. I called the father's attention to this condition and he saw to the carrying out of the posture treatment but the bi-parietal diameter can still be seen in photograph No. II which

was taken in the fourth month. The improvement is illustrated and also the space between the eyes in photograph No. III which was taken in the eighth month.

Photograph No. IV shows a typical head in an infant of six months who has been kept a great deal in a sitting position. William D., an eleven pound boy, was born Nov. 13, 1895, mother primipara, perineum lacerated to sphincter ani, mechanism of labor normal: his head was elongated but not so much as Lilian's or Florence's.

My attention was first drawn to the effect upon the head when children were kept too long in one position by observing the effect upon a delicate babe, one of twins born June 29th, 1887. I was a consulting physician called to decide what there might still be in a perfectly round uterus, besides the secundine, twenty-four hours after the first child was delivered. I found a small child rolled into a ball, the spine fitting the curve of the fundus. As soon as I ruptured the amnion the head began to descend and, as I withdrew my hand, followed to the inferior strait where it was quickly delivered by forceps to relieve the exhausted mother. The child was supposed to be dead, as there had been no movement nor heart beat detected since the delivery of the first child, but it was soon resuscitated and taken out of the room; and I expected to see no more of it. After the mother was revived, one of the relatives asked me if I would not see to the child for them, as the nurse had become very much

exhausted in the three days labor and, they thought, I might care for the child more carefully. I oiled and wrapped her in clean warm cloths and laid her on her right side upon a pillow. When I returned, by request, twenty-four hours afterwards, I found her still on the pillow in the same position in which I had placed her with the right parietal bone of her soft little head bent so that it looked like one face of a cube and several weeks elapsed before it regained its normally rounded contour.

Does this in any way affect brain development? Everything else being equal the more brain space we have

the more brain substance, and if, according to Brill,\* "Almost all who have been investigating teratological phenomena have come to the conclusion that an abnormal constriction of the amnion at the head end of the embryo gives rise to the forms of arrested development shown in anencephalia, exencephalia, cyclopia, and arhinencephalia;" then surely any undue pressure upon the flexible bones of the infant will injure the brain if not counteracted by posture which will relieve the pressure which even the lightest normal mechanism of labor entails upon every child.

DIXON, ILLINOIS.

\* General Diseases of the Brain page 323, Nervous Diseases by American Authors.

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## INFANTILE ECZEMA.\*

BY W. D. WILLIAMSON, M.D.

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Having been unfortunate enough to have a case of infantile eczema in my own family is probably the reason of my choice of this subject, and not because I have had a large number of such cases to treat, or that I am able to manage them with unusual success; on the contrary, my experience in the management of eczematous cases has been rather unsatisfactory. There are only one or two features of this disease that I can say I understand, the intense annoyance and suffering these little ones have to endure and the obstinacy of the disease to yield to treatment.

Eczema may be considered the most important affection of the skin with which the general practitioner has to deal, and as we know a large per cent. of all cases occur in children, I think it is our duty as physicians to interest ourselves to our utmost ability to relieve this class of little sufferers.

Eczema is said to be a non-contagious inflammatory disease of the skin, which bears a resemblance to catarrhal states of the mucous membrane in its habit of discharging and in its repeated attacks.

Eczema is characterized by a polymorphous eruption, consisting of erythema, vesicles, papules, pustules, crusting, scaling and infiltration; all

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\*Read before the Maine Medical Association, June 3, 1896.

of these lesions need not be present at the same time, though they may. In practice the disease is more often met in its sub-acute or chronic stage. There are some cases that seem to be in a condition of active inflammation from beginning to end. Eczema in children is seen to occupy certain situations more often than in adults, such as the face and scalp, and is usually of a more acute inflammatory type. Pustular eczema is seen more often in children. Eczema rubrum and squamosum are frequent, but much infiltration is uncommon. Other features of importance are glandular swellings, the lymphatics of the neck being principally involved. Generalized eczema in children is uncommon. Eczema of groins and other opposing surfaces is frequent. The face and scalp are oftener affected in children. Eczema of scalp is often evoked by too harsh means to remove the sebaceous secretion which clings to the new born infant.

Much has been written about the etiology of this disease; so far as I have been able to learn, but little is definitely known, yet sufficient has been proven by clinical experience to establish rational and in most cases effective treatment.

It is not uncommon to find that eczematous parents have eczematous children, and vice versa. Ill nourished and strumous children are prone to the disease. Anything that tends to lower the general condition, such as unhygienic surroundings, improper or insufficient food for either mother

or child, is favorable for the development of the disease.

The irritation of the eruption of the teeth plays some part among exciting causes, but too much must not be laid to teething. Constipation, disordered digestion, improper action of liver and kidneys are all important etiological factors. It is believed by some that the disease is of a parasitic nature, produced by some coccus or bacillus which nobody has been able to isolate or prove. Whatever the true nature of the disease may be, it is a fact that the eczematous subject has a specially susceptible skin, and under such circumstances the disorder may be evoked by any cause, internal or external, that will awaken this susceptibility.

Eczema has been confounded with urticaria, scabies, some forms of the syphilide, pediculosis, ringworm, favus, psoriasis, and some other forms of skin diseases, but I think in most cases at least, by careful observation, we will be able to make a correct diagnosis.

The most striking symptom of the disease is the itching, which varies from a very mild to a most torturing burning, and the little ones will make frantic efforts to get relief by scratching or rubbing. A striking feature of the disease is its periods of quietude and exacerbation. A mildly subacute condition may suddenly take on a most active type, and one should warn the parents about this, lest they prematurely rejoice and the doctor gets dismissed.

The duration of eczema varies



from a few days to months or years.

In considering the treatment, the hygienic condition should first be looked into. It may be found that every thing is correct and that the child is plump and apparently well except for its skin affection, but usually this is not the case.

Among children, both of the rich and poor, improper food may be the chief unhygienic condition.

The mother's milk may be scanty or inferior in quality. When this condition is found, the child if necessary, may take an alien breast or be given one of the many milk substitutes, but I believe the best food for a child who for any reason cannot take breast milk, in a large majority of cases, is good, pure, fresh, mixed cow's milk, prepared according to some standard formula.

We may find that the child not only takes milk but partakes of food from the table, also drinks tea and coffee, which of course is wrong.

The fact that a child is fat and plump does not always prove that the diet contains fat in a correct amount.

This disease demands plenty of fresh air and out of door life. Sometimes a change from the interior of the country to the seashore, and vice versa, will prove of decided benefit.

Attention should be given to the clothing, as rough, coarse underclothing will help to provoke the dis-

ease. Bathing should only be done to meet the requirements of cleanliness, and in some cases it must be abstained from altogether, especially in a moist, red, exuding surface. The irritant effect of water may be controlled somewhat by the addition of soda, salt, or sometimes fresh milk. Occasionally water applied as a therapeutic agent, as hot as is possible to bear, will allay the intense burning and itching. Careful investigation should be made for local causes, and these removed if possible.

In the matter of internal treatment it may be stated that there are no specifics for this affection. In every case a searching investigation must be made for exciting causes and complications, and the indications met in each case, as routine is to be avoided.

If the child is being suckled, the mother should abstain from stimulating foods and drinks; if she is ill nourished and anemic, her condition should receive proper attention. If the child is old enough to be fed, careful attention should be paid to the character of the food and to the time and frequency of meals, and it would be well to write out diet tables.

An occasional small dose of calomel and bicarbonate of soda will prove of benefit, and in the beginning of treatment it is usually necessary to stimulate the emunctories that we may get rid of the excrementitious matter stored up in the system, and I know of nothing better than calomel. Anæmic and strumous children are much benefited by the use of iron,

especially the syrup of the iodide and some preparation of cod liver oil. The routine practice of prescribing arsenic\* should be avoided, as it should never be given in acute attacks, and we fail sometimes to get the benefit we expect from it in chronic cases. It is, however, a good remedy and should be used. In combination with iron it sometimes proves more useful than when used alone. Children bear relatively larger doses of arsenic than of many other drugs.

Sulphur is said to exert a decided influence on eczema, and in administering it the younger the patient and the more acute the disease the smaller the dose. It is of most use in pustular eczema.

Small doses of iodide of potassium will often prove of service. Salines are beneficial, and sometimes in combination with iron will be all that is necessary. As a rule local measures are sufficient to allay itching and procure sleep, but often it will be necessary to resort to internal remedies. Opium in any form should not be given as it increases the pruritus. Small doses of phenacetin are of value to allay the itching and produce sleep.

Sulfonal to procure sleep is useful, also bromide of potassium or sodium and chloral hydrate. Tincture of gelsemium is said to be of service to this end.

Quinine is highly recommended in one half grain doses for a child a year old, given an hour before bedtime.

The local treatment of eczema is of much importance, and the principles underlying it though simple, should be borne in mind, viz., that when the disease is acute soothing remedies should be applied, when subacute they may be a little astringent, and when the chronic stage is established some stimulation is usually needed, but it is wise to begin carefully, as a child's skin will not bear such vigorous stimulation as that of the adult.

Sedative and slightly astringent lotions are useful in acute eczema, such as lime water and opium, solutions of soda, black-wash or lead and opium wash.

The calamine and zinc lotion has been more useful to me than any other one wash.

R	Pulv. Calaminæ Prep.,	ʒi
	Zinci Oxidi,	ʒii
	Glycerini,	ʒss
	Aquæ Rosæ or Aquæ Calcis,	ʒiv
M.	Sig. Apply with small brush.	

When the surface is red and angry looking, discharging a thin watery secretion, the following wash is very good:

R	Liq. Plumbi subacetatis,	ʒss
	Glycerini,	
	Aquæ	aa ʒii

M. Sig. Apply with brush three or four times daily.

Plain oxide of zinc ointment, with a little carbolic acid, five to ten drops to the ounce, is very useful as a protective and soothing application. I have found olive oil, with oxide of zinc and carbolic acid, to be an excellent preparation when the surface is raw and irritated, and it has been my experience that the cases

presenting the appearance just mentioned are more difficult to manage than a nasty, pustular, scabby condition.

In most cases of eczema in children, in subacute stage, with intense itching, the zinc and tar ointment is the most satisfactory I have been able to find.

R	Zinci oxidi,	3 i
	Ung. Picis Liq.,	3 ss to 3 ii
	Ung. Aquæ Rosæ,	3 ii
	Lanolini,	3 ii

M.

Very much depends upon how an ointment is applied, and whether it is kept in contact with the diseased skin all the time or not. It is not necessary to say the ointment should be well made. It should be spread on old linen or lint or some thing of the kind and held on by a light bandage wherever it can be, and the hands should be done up to prevent scratching, as much harm can be done by a few minutes scratching and perhaps lose all we have accomplished. On the face, in some cases, it is best to use a mask of muslin or some soft material. Children who cry and make a great deal of trouble about having their hands or legs done up, usually after one or two trials submit to the treatment very readily, as they experience great relief by it, and it is by paying close attention to these little details and knowing that they are carried out according to directions that we get the best results from treatment. For a stimulating ointment, if we do not get good results from preparations containing tar in

some form, an ointment with mercury will be found useful, such as—

R	Bismuthi Sub. Nit.,	3 i
	Ung. Hydrarg Ammon	3 i to iv
	Ung. Aquæ Rosæ,	3 i

M.

For eczema, between folds of skin, powders are used such as—

R.	Acidi Salicylici,	gr. xx
	Zinci Oxidi,	
	Bismuthi Sub. Nit.	aa 3 ii
R	Pulv. Amyli,	3 iv
	Zinci Oxidi,	3 i
	(Pulv. Camph.,	gr. xx)

M.

In treating eczema of the scalp, it is necessary to remove crusts by applying some bland oil, like olive oil and carbolic acid, and clip the hair short before applying the ointment. If the eruption is acute apply a bismuth salve. After the acute symptoms have subsided apply the tar and zinc ointment. Wherever crusts are found, these must be first removed before applying the remedy. Pastes are useful where an adhesive and protective application is required. They are not so readily scratched or rubbed off. They are particularly useful in irritable papular erythematous conditions, and in eczema intertrigo.

Lassars' well known formula is a good one, and is—

R	Acidi Salicylici,	3 ss
	Zinci Oxidi,	
	Amyli,	aa 3 vi
	Vaseline,	3 ii

M.

Tar may be added to this if more stimulation is needed.

In closing I will repeat that persistent and careful observation regarding

the little details of treatment is necessary in the successful management of infantile eczema. If I have succeeded in bringing your attention to this disease, to regard it, as I do, as

one of the worst troubles that can come to a child, the purpose of this paper, unclassified though it be, will have been accomplished.

(GORHAM, N. H.)

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## REVIEW OF PÆDIATRY.

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### Treatment of Ophthalmia Neonatorum.

Dr. R. Ferguson, in a paper read before the Canadian Medical Association, last August, makes the following suggestions:

Where infection of the maternal genital organs has not been detected or suspected, and where prophylaxis has not been employed, inoculation of the infant's eyes at the moment of birth is very liable to occur, and, if not, the nurse or mother, or child itself, is almost certain to convey the infection to the eyes soon after birth. Usually both eyes are affected but occasionally only one is inflamed, in which case the second eye should if possible be protected. Statistics show that first-born children most frequently contract the disease. The usual tardiness of a first labor, it may be, exposes the child to more contagion from a primipara than a multipara.

The period of development is about three days. The time after labor at which the disease manifests itself will depend upon whether inoculation takes place at birth or is conveyed from mother to child some time after birth. The physician should visit his patients on the third day after confinement to examine the eyes of the child, if for no other purpose, and he should at the outset instruct the nurse to report to him the slightest symptom of redness or irritation of the conjunctivæ occurring within the first two weeks of

birth. A slight catarrhal conjunctivitis is sometimes present about the end of the first week, due to lack of cleanliness, or the abominable practice of mothers putting milk into their babies' eyes. If the inflammation is infective, however, the symptoms will shortly render the diagnosis positive. The slight redness is soon followed by swelling of the conjunctivæ and eyelids and the appearance of mucopurulent secretion, at first tenacious, but soon full and creamy. Treatment should be begun with the first symptom of local irritation, even if the disturbance subsequently proves to be only a catarrhal conjunctivitis. Begin with frequent cleansing of the eyes. This is best done by irrigating with the fountain syringe, suspended not more than two feet above the child's head. A tuft of sterile absorbent cotton or a pad of gauze should be tied about the mouth at the glass nozzle attached to the irrigating tube. This not only serves as a filter, but breaks the force of the current and allows it to flow gently upon the eyeball. The nurse rests the infant on her lap upon its back, holding the hands and steadying the head, which is allowed to droop slightly over a basin which catches the water as it flows from the child's head. Not less than a quart of tepid water should be used at each irrigation in order to thoroughly remove the purulent secretion. The eyelids should be separated gently, and great care taken not to cause any abrasion



of the conjunctiva, especially of the cornea. Do not attempt removal of the secretion from the eyes by wiping with bits of lint or absorbent cotton. The lids may be treated in this way before separating them, but the conjunctival sac is more safely cleansed by free irrigation. The frequency with which irrigation is employed will depend upon the abundance and character of the secretions. At the outset three or four irrigations in twenty-four hours will suffice; but as the discharge becomes free and purulent, irrigation at least every couple of hours will be necessary. With the lessening of the discharge the intervals may again be lengthened. The irrigating fluid employed is usually an antiseptic solution. The antiseptics which find most favor are boracic acid and corrosive sublimate. The strength and choice of the solution will vary with the conditions of the disease. The preference is sometimes given to corrosive sublimate because of its germicidal power. It is probably the constant cleansing of the organ and frequent removal of the infective discharge, rather than the germicidal properties of the irrigating fluid, that retards and ultimately destroys the vitality of the coccus. Besides, corrosive sublimate is irritating, and may impair the nutrition of the cornea and tend to ulceration. The best cleansing solution is probably a saturated solution of boracic acid; it is harmless, somewhat astringent, and slightly antiseptic.

**COLD AND HOT COMPRESSES.** The practice of applying cold compresses in the intervals between irrigation is beneficial in the early stages of the disease. Pieces of lint an inch square are kept upon a block of ice, and laid upon the swollen and inflamed eyelids as frequently as required to maintain a reduced temperature. Care and judgment, however, are required in

their use. As the redness, tension, and swelling of the eyelids subside, the application of the cold compresses must be made less and less frequently. The moment the slightest haziness of the cornea is observed, the indication is that the vitality of the cornea is being lowered, and that the application of cold should cease. If improvement in the appearance of the cornea does not follow in twenty-four hours, hot compresses or fomentations at a temperature of 120° F. should be employed, and these should be continued as long as corneal complication exists.

**NITRATE OF SILVER.** The question of the employment of nitrate of silver in the treatment of this disease deserves some consideration. Nitrate of silver is a germicide. Andrews found that a 2-per-cent. solution destroyed the infective properties of gonorrhœal pus in six to ten seconds, and Weeks with the same strength extinguished the vitality of the staphylococcus pyogenes aureus and typhoid bacillus in four seconds. In ophthalmia neonatorum, nitrate of silver employed at the proper time is *facile princeps* of the local applications. It must not be employed too early, before free discharge is established, nor at any stage while the lids are tense and the conjunctival surface covered with a gray film. But when the lids are relaxed and the swelling has subsided, when the papillæ of the conjunctiva are swollen and the discharge is free and creamy, the time for its use has come. After irrigating the eyes with a cleansing lotion of tepid water, the lids are gently everted and the conjunctiva brushed by means of a cotton mop or camel's-hair brush which has been dipped in a 1 or 2 per cent. solution of nitrate of silver. After thirty to sixty seconds' exposure, all excess is removed by irrigation with water or a weak solution of common salt. This is allowed to flow until a clean,

red surface is obtained. After returning the lids, smear their margin with pure vaseline. The nitrate of silver application is made once or twice a day so long as the discharge continues abundant. Frequent cleansing irrigations may be employed in the intervals. As the disease declines, the strength and frequency of the nitrate-of-silver applications should be lessened. The duration of a well-marked attack of ophthalmia neonatorum usually extends over six or eight weeks, and, generally speaking, the nitrate-of-silver treatment is indicated during the latter half of this period. — *American Medical-Surgical Bulletin*, Sept. 26, 1896.

### Rheumatic Carditis of Childhood.

In a clinical lecture delivered not long ago at the Hospital for Sick Children, London, Eng., Dr. Octavius Sturges said: The endo-pericarditis associated with rheumatism in childhood is by far the commonest of all the cardiac affections of early life, claiming no less than half of the whole number. The other half, mainly pericarditis, includes also a few examples of chronic valve disease and a yet smaller number of recent endo-carditis apart from pericarditis. Thus children's heart affections (congenital defects being excluded) are cast in two great divisions: one, peri-endo-carditis, which is rheumatic; the other, pericarditis, owning a variety of causes, recent endo-carditis by itself being so rare as to hardly count in the enumeration. Indeed heart disease in the strictest sense is almost wholly rheumatic in these subjects. Of the non-rheumatic, infants and young children form the great majority. The bulk of the rheumatic cases falls between the ages of six and twelve, pretty evenly distributed.

The general characters of the child's

articular rheumatism, with which carditis so often occurs, are well known to you: slight fever, joint affection often indistinct and fugitive, absence of prostration or any abiding sense of illness. Such attacks often recur and recurrent rheumatism is certain to cripple the heart. Apart from this consideration of probability devoid from repeated attack, I do not know what physical signs there are conclusive of structural heart diseases in children, except prolonged blowing murmur, thrill and change in the heart's size and shape.

The conclusions arrived at by the lecturer are:—

1. Rheumatic carditis in children is with rare exceptions peri-endo-carditis. It affects non-tubercular children over six years of age and is commoner with girls than with boys. It thus differs from pericarditis alone, which is met with in infants and very young children in various associations; and from endocarditis alone, which, when recent, is almost peculiar to non-rheumatic chorea.

2. Rheumatic arthritis in childhood, however ill marked as a joint affection, almost always attracts the heart's sympathy and alters its sounds and rhythm while in some cases pericardial friction is its earliest sign. But the carditis of a first rheumatic attack is apt to recover completely: the children who die or get permanently crippled as regards the heart are almost always examples of recurrent rheumatism.

3. Pericardial friction sound in connection with articular rheumatism implies endocarditis as well as pericarditis, and thus determines the significance of endocardial murmurs, which of themselves are at first equivocal. It is but rarely that such friction is not audible at some time or other in the course of a rheumatic attack, but being fitful in occurrence and very

variable in sound it is habitually overlooked.

4. In fatal cases of rheumatic carditis in children, it is the rule to find adhesion, and the exception to find the heart free. At the same time it is the rule to hear exocardial rubbing, often continued till death, and the exception to hear none.

5. It is apparent from *post mortem* evidence that diagnosis as to the adhesion or non-adhesion of the pericardial surfaces devoid from exocardial sound is as likely to be wrong as right. At the same time it may reasonably be supposed as regards *recent* adhesions that the mere act of dying favors it; so that taking all the cases together, fatal and non-fatal, adherent pericardium may be a less frequent event of rheumatic carditis in childhood than our *post mortem* records would show.

#### **Adherent Pericardium in Children.**

BY GEORGE MONTAGUE SWIFT, M.D.,

Cases of adherent pericardium in children although probably not rare are apparently frequently overlooked. Our knowledge of this condition has received very valuable accessions recently from Broadbent in England.

Adherent pericardium arises from a single attack of pericarditis or from repeated attacks which may have a subacute character. The adhesions may be partial or complete. A marked hypertrophy and dilatation of the heart often accompanies this condition, although in some cases the heart remains normal in size or atrophied. Symptoms arising from embarrassment of the circulation due to this condition are dyspnoea, œdema, ascites and vomiting.

The physical signs of adherent pericardium depend on the extent and position of the adhesions and on whether they involve only the two layers of the pericardium or exist

between the pericardium and chest wall or adjoining pleura, diaphragm or other parts of the mediastinum. Of the physical signs often found the following are important.

1. Marked enlargement of the heart is present in many cases, accompanied by various murmurs.

2. Systolic depression at site of apex beat.

3. Systolic retraction of lateral and posterior walls of thorax.

4. Impeded descent of diaphragm in inspiration.

5. Dilatation of the veins of the neck with sudden emptying in diastole.

6. Absence of feebleness of apex beat.

We find the following notes concerning Lizzie C., six years, admitted to St. Mary's Free Hospital for Children, New York, May 5, 1886:

The previous history was that the child for four years had been the victim of rheumatism, and that two years ago a physician had said she had heart disease. Upon admission she had a peculiar cachectic look; her abdomen and feet and legs were swollen and œdematous; there was great dyspnoea. The heart's action was turbulent. She was immediately tapped and three pints of turbid serum were drawn from the peritoneal cavity, and the cavity was then allowed to drain; it was then found that the lower edge of the liver was on a line with the umbilicus. Pericardial dullness extended from about an inch below the left clavicle to the abdomen; there was dullness laterally from two inches internal of the axillary line to the right of the sternum. There were double murmurs at both apex and base of heart, the point of maximum intensity being in the second left interspace; the apex beat could not be located. With inspiration there was depres-

sion of the sides of lower part of chest: there was no "pitting" of intercostal spaces over the pericardium. Posteriorly there was exaggerated resonance over upper portion of chest: there were râles over the lower portion of chest on both sides: there was some cough, but no especial pain.

The diagnosis was adherent pericardium, dilated heart. Because of the peculiar cachectic appearance of the child, the large liver, and the turbid, ascitic fluid, it was also thought that there was some malignant abdominal disease.

Death, May 14th. Autopsy same day; abdomen was distended with turbid fluid; liver large and dark with thickened capsule: lower edge almost on a line with umbilicus: upon section the liver was hard and firm with increase of interstitial tissue: the spleen was congested, but not especially enlarged: the cortex of the kidneys was thickened: the urinary examination during life had been negative. Upon opening the chest the pericardium was found firmly adherent to the chest wall and to the heart itself; the heart was much enlarged and dilated, concealing almost entirely the left lung: there was thickening of the endocardium, but no especial valvular lesion beyond some vegetations on the mitral and tricuspid valves: there was no pleuritic effusion: the lungs were oedematous. *Archives of Pediatrics*, October, 1896.

#### **Abscess of the Cavity of Retzius Originating in an Appendicitis.**

We imagine that to many of our readers the term "Cavity of Retzius" will not convey any very definite idea. Neither Quain nor Gray mention it. But Billings tells us that it is a name applied to the præ peritoneal cavity.

"A supposed space in the subperitoneal tissue of the anterior wall of the abdomen into which it was believed the bladder rose when much distended; now known to be merely a series of rather loose areolar spaces." Thus defined we recognize the condition as not unknown though rare. One has come under our own observation, a young French Canadian woman. The abscess discharged without much systemic disturbance by a sinus several inches long, opening near the umbilicus, for many months. Finally it healed and at last reports the woman was well. The origin of the abscess was of course never definitely determined as it was in the case reported by Dr. F. Brun.

This was a boy, 9 1-2 years old, who had been suffering from obstinate constipation for two and a half months following an attack of severe colic and diarrhoea attributed at the time to the ingestion of some decaying fish. Fifteen days before entrance to the hospital for "Enfants-Malades" he was taken with violent pain on the right side and groin accompanied by vomiting. The physician called detected in the right hypogastric region a small hard mass of the size of a hen's egg. This could be easily felt but did not appear to the eye unaided by palpation. Rest in bed, poultices and castor oil were ordered. There was no improvement but the tumor increased in size and was visible. Incontinence of urine with painful micturition became troublesome though the urine was clear and odorless. At the time of entrance the tumor presented the same appearance as a distended bladder, reaching to within two fingers breadth of the umbilicus. Catheterization however, did not at all effect its size. It was extremely hard though distinctly fluctuant, and rather tender. There was no redness or oedema of the overlying



skin. Rectal examination merely confirmed external palpititation. Temperature 101.°5; pulse a little rapid but good; tongue pale.

When the child was prepared for operation, on the following day, catheterization revealed for the first time turbid and extremely fetid urine with a fœcal odor and containing clumps of pus, indicating clearly rupture of the abscess into the bladder. Operation revealed a cavity of the size of an orange filled with sanguino-purulent fluid very foul and faecaloid. It was centrally located though extending a little farther to the right. There was very extensive induration of the abdominal wall. The pouch was washed with boiled water, dried and packed with iodoform gauze. That night without evident cause he suddenly died. Autopsy revealed an acute general purulent peritonitis due to an opening into the abdominal cavity from the abscess, situated in the abdominal wall. The viscera were normal except that the tip of the appendix was adherent to the wall of the abscess. A probe passed easily from one into the other, showing the presence of a perforating Appendicitis as source of all the trouble. The bladder showed within numerous points of ecchymosis but no perforation could be found, though undoubtedly one was present. Another point which Dr. Brun mentions as remarkable was in the failure of any of the many germs found in the pus by direct examination, to grow at all on either bouillon or gelatine.—(*La Presse Medical*, July 18, 1896.)

#### The Operative Treatment of Diseases of the Hip-joint Children.

Dr. T. Pickering Pick in a clinical lecture recently delivered at

the Victoria Hospital for Children in London, England, makes the following suggestions: There is no surgeon nowadays who would deny that as soon as an abscess is formed, the time has arrived for operative interference. And it must be understood that in using the word abscess, which is perhaps not a very correct one, but at the same time a very convenient one, I mean to include all those cases where the tuberculous material has caseated and broken down, and formed a curdy fluid, no doubt in most cases mixed with pus from the surrounding inflamed tissues.

When this has taken place, there is no prospect of any amelioration except by the evacuation of the curdy material which has formed. But we should be very sure that there is pus or caseated tuberculous material before operating. I do not agree with Mr. Croft in thinking that it is necessary to incise every swelling in hip-joint disease. I have seen many cases with swelling at the hip-joint in which the swelling has existed and remained even for months, and then finally has disappeared and the child has recovered without any operation or incision being necessary. Therefore make sure that matter is present, and there is an easy way of making sure by the exploring syringe.

In those cases where I have to open an abscess, I always make the incision from a little external and below the anterior superior spine of the ileum, in a direction downwards and inwards in an oblique direction, cutting between the sartorius and the tensor vaginae femoris, and then between the rectus and the glutei. By this means the neck of the femur and the capsule of the joint may be easily reached and the puriform fluid evacuated. This latter should be done as rapidly as possible and the abscess

cavity scraped and well sluiced out with hot sterilized water or antiseptic solution, so as to get rid of all caseated material as quickly as may be, so as to prevent any more contamination of the wound than is absolutely necessary. A careful exploration should now be made and the exact condition of things ascertained as far as possible.

The first thing is to ascertain whether the disease began in the synovial membrane or in the bone. In a few cases on introducing the finger the bone will be found to be quite hard and firm though denuded of cartilage, and on passing a probe it will be found to impinge on hard bone into which it cannot be buried. These, I assume, are cases where the disease has begun in the synovial membrane, and under these circumstances I do not remove the head of the bone but I do what I call a limited erosion; I scrape away as far as I can all the tuberculous tissue and diseased synovial membrane and flakes of cartilage which remain on the surface of the bones. I then wash out the joint with hot sterilized water or some antiseptic lotion, generally using corrosive sublimate, introduce a drain into the joint, inject some iodoform emulsion, and sew up the wound. I do not do what is recommended by some, turn the head of the bone out of the socket and then replace it. Subsequent treatment consists in daily flushing and the fluid which I use is iodine, a drachm of the tincture in a pint of hot water. The joint is thoroughly flushed out with this and the limb is kept perfectly at rest on a double Thomas's splint. If the discharge continues for six weeks and shows no prospect in becoming thinner or less quantity, then under these circumstances I give up the case as hopeless and I at once proceed to ex-

cise the joint. But if, on the other hand, the discharge becomes less in quantity and thinner in quality, then I presume in this line of treatment and in some cases secure a bony ankylosis between the head of the bone and acetabular cavity, and a better limb than I should have gotten by excision. I am bound to confess, however, that in a large majority of cases this fails, certainly in fifty per cent., but my argument is that the procedure does no harm and that if it succeeds you get a much better limb than you would get if you had excised the head of the bone.

Next we consider those cases where the disease of the hip started in bone, and these, as we have seen, constitute the greater portion of the cases with which we have to deal. The disease may begin in four different situations. By far the most common place for it to begin is in the ossifying tissue of the diaphysis in contact with the epiphysal cartilage; but it may also begin in the center of the cartilaginous epiphysis of the bone, or in the ossifying tissue of the trochanter or in the acetabulum.

In the great majority of cases where the disease has arrived at the stage of formation of abscess external to the bone, that is to say, the stage at which operative interference is undertaken, it will be found that the joint is implicated and is full of pus. In these cases in spite of the implication of the joint, I am sometimes disposed to attempt to save the head of the bone, provided there is no evidence of the disease having extended itself to this structure, that is to say, in those cases where the bone is smooth and hard and not in any way eroded.

But in the majority of cases of hip-joint disease where suppuration has taken place, we must excise the joint. For in most cases when the abscess is

opened and the parts examined, there will be found to be such evidence of disease in the bone as will make it perfectly clear to the operator that the only way of bringing about a successful issue is to remove the head of the bone.

There are many ways of doing this: one way is by the posterior incision through the glutei muscles,—this was the old plan; then, secondly there is the plan by the external incision and thirdly, the plan by the anterior incision to which I have already alluded. The second plan, by the external incision, was in vogue twenty years ago, when surgeons were inclined to advocate a much more extensive removal of bone than is usually adopted in the present day. Of these three plans I give decided preference to the anterior incision, in the first place because it is the most convenient for exploration and having made the opening to explore, if it is found desirable to continue the operation, it is not necessary to make another incision; and then another advantage of the anterior incision is that no structure of any importance is cut through.

The abscess having been opened in the manner I have before indicated, the parts are flushed out so as to get rid of all tuberculous material as quickly as possible, and then any structures about the joint are cleared with a scalpel and the neck drawn through with an Adams' saw and the head removed with a pair of sequestrum forceps. The acetabulum must now be examined by the finger to ascertain whether it is involved in the disease and to what extent. It and the whole abscess cavity must be thoroughly scraped until every particle of diseased tissue is gotten rid of. In doing this the most useful instrument will be found to be Barker's flushing gonge which washes away

the débris as fast as it is separated. When the cavity is cleaned, it should be dried and a sponge introduced, stitches are then inserted through the edges of the wound, but these are not tied at once. As soon as everything is ready, the sponge is removed, iodoform emulsion is introduced into the cavity, and is allowed to remain there for a minute or two and is then pressed out by the hands of an assistant, while the stitches are tied. The limb is then abducted, and in this position the wound is dressed. The whole limb is put up in Plaster of Paris or Thomas's splint, or arranged with sand bags. These cases do not as a rule require dressing for ten days, provided the temperature remains normal: the wound is then dressed and the stitches removed and that is all that is necessary. The child is, however, to be kept on a double Thomas's splint for three months with the limb in a position of abduction. If the weather is warm it of course can be carried out of doors but must be kept flat on its back. After this it may be allowed to use a single Thomas's splint. I make it a rule never to allow a child to put the excised limb to the ground for twelve months after the operation, so as to ensure a firm union.—(*The Clinical Journal*, July 8, 1896.)

### Treatment of Birthmarks.

ELLICE M. ALGER, M.D.

The comparative frequency with which one sees upon the street or in private practice, most distressing cases of birthmarks, must have been noticed by every observant physician. And the fact that beautiful girls are allowed to pass through life with a crimson stain upon the forehead, or a yellow mark upon the cheek, would argue that many family physicians are

entirely unaware of the ease with which many of these hideous disfigurements can be obliterated.

All things considered the use of electrolysis is by far the most satisfactory means of treatment, but in order to secure good results it is necessary to have a good idea of the physical and chemical properties of the current. The appliances necessary consist of a galvanic battery of at least ten cells, or some means of regulating the street current, conducting cords, sponge electrodes, needle holders, needles, etc.

A milliamperemeter is not necessary, but it is an assistance to good work. The cells should be connected zinc to carbon. The needle-holder is better without the spring to break the current which is so generally provided, the needle may be varied in size according to the character of the work, from that of the very finest jeweller's needles to the broad flat surgical ones.

The sponge or punk electrode, attached to the positive pole, thoroughly moistened with saline solution, can be continuously applied to the skin, regulating the current through a rheostat but the best way is to have the patient hold the sponge and complete the circuit by pressing it against some convenient part of his body. It is less painful to break the current at the positive pole, and the patient is able to regulate the current in part by increasing or decreasing the pressure. The needle attached to the negative pole should be introduced at the margin of the growth, either perpendicularly to the surface of the skin, or in a slanting direction, according to the size and depth of the nerves, and a current of from one to three milliamperes used according to the patient's fortitude. There is at once evolved at the negative pole about the needle, hydrogen gas,

which can be seen bubbling up, and a caustic alkali, which destroys a certain amount of tissue in proportion to the strength of the current and the depth to which the needle has penetrated. No arbitrary rule can, therefore, be laid down as to time, which is dictated entirely by experience. If it is left too long, too deep a scar results; if not long enough, no appreciable effect is produced. The proximity of the insertions must be governed by the effect desired, which is to combine the white of the scar-tissue with the red of the nevus, so as to produce a general effect as much like the rest of the skin as possible. The punctures should not be closer than a sixteenth of an inch. If the mark is large, work can be facilitated by using a group of needles. The nevus araneus is thus very easily destroyed. But in the large angiomatous nevi, it is much harder to get a perfect cosmetic effect and in the great majority of cases it is not safe to make definite promises of a good result. The pigmented moles are best treated by this negative electrolysis and as the pigment is not deposited very deeply beneath the surface, the needle need not be introduced so deeply, better results being obtained by passing it just beneath the surface from one side of the mole to the other, repeating the process according to the size of the mark.

In all these cases, there will follow for several hours some signs of cutaneous inflammation, which can best be treated by means of hot water. No great change in the appearance of the growth must be looked for at the time, but in the course of a few days, a crust will form and come away, leaving in its place a slight scar which constantly tends to become thinner and fainter.—*Medical News*, Aug. 22, 1896.)

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### Methods of Sterilizing Milk.

So much is written, pro and con, of the best method of preparing artificial foods for infants, that it may interest our readers to know of the methods reported by Dr. Variot of Paris.

Two methods of sterilizing milk, for the use of artificial feedings are employed in France. One is apparently much like our own use of the Arnold sterilizer or similar apparatus. The other method is to have the milk sterilized in great business establishments located in the country, the sterilized product being placed in bottles and hermetically sealed. Both methods Dr. Variot finds open to objections.

Home sterilization he believes much the better for people who live in the country where the milk can be secured fresh and sweet, and of good quality. With but little trouble a supply can be prepared each day, enough for one feeding only in each bottle. But the same is not true of Paris or London. Good milk is expensive, poor milk is cheap and abundant. Fresh milk is almost impossible to get. Investigations shows that it is often 16 hours after the cow is milked before the milk can be secured by the family and sterilized. In summer this gives ample time for the formation of ferments. Sterilization will destroy the germs but not the products of their action. Hence a milk is given to the infant which has been already rendered unsuitable and which in many cases causes digestive troubles in spite of every care in the home. Moreover, milk which is sold to the poorer people is nearly always watered. Apparently they do not have in Paris the careful inspection of milk that exists in some American cities, Boston for instance. Hospitals and public

institutions escape these difficulties because they have competent inspectors of their own.

Milk sterilized at a factory, however, is of known strength and freshness. It is secured from cows in good pastures or well fed in stables. It is carefully sealed and will keep for a long time. Herein lies the danger however. For the date of sterilization is not noted on the bottles and the milk may be too old. After a time the milk separates and a layer of clotted butter covers the top, while below is clear serum like liquid. Moreover the bottles may be carelessly sterilized or poorly sealed and hence become spoiled or sour or have a bad odor or taste. Therefore it is always a good plan to taste the milk before giving it to the child. Milk thus prepared, however, may be easily distributed to the poor from dispensaries. Accordingly Dr. Variot concludes that the home sterilization is best for country people, while the factory product with the precautions indicated is most satisfactory for the working people of the city.—*Journal de Clinique et de Thérapeutique*, Aug. 13, 1896.

### Disinfection of School Books.

Elmer Grant Horton, after a careful study and many experiments in the matter at the laboratory of Hygiene at the University of Pennsylvania arrives at the following conclusions:

1. Books can be disinfected in a closed space, simply by vapor of commercial formalin by using 1 c.c. of formalin to 300 c.c. or less of air.
2. The vapor of formalin is rapid in its disinfectant action. The effect produced in the first 15 minutes is practically equivalent to that observed after 24 hours.
3. The increase in the amount of air to each c.c. of formalin is not con-

terbalanced by an increase in the length of time of exposure.

4. In case the disinfection has been incomplete, the vitality of the organisms has been so weakened that they survive only if transferred in a few hours to media, suitable for their development.

5. The vapor of formalin is not detrimental as far as observed in any manner to the books, nor is it objectionable to the operator beyond a temporary irritation of the nose and eyes, somewhat similar to that produced by ammonia.—*Medical News*, Aug. 8, 1896.

### An Unusual Case of Melæna Neonatorum.

BY FLOYD M. CRANDALL, M.D.

On February 24, 1895, I was asked by Dr. Charles Van Wert to see Baby D., in consultation. The child was fifteen days old. It had been born after a normal labor and up to a few hours before had appeared to be a perfectly normal and healthy infant. The mother was healthy and had made a good recovery from her confinement. The child was exclusively breast fed. Its bowels had acted normally until about six hours before my visit, when there suddenly occurred a large passage, composed chiefly of dark clotted blood and tarry matter. This had been followed during the next two hours by two other passages composed chiefly of blood. The child became greatly prostrated and, for a time, according to the history, must have been in a state of collapse. There had been no passage for nearly four hours, and the child's condition at the time of my visit had much improved. It was, however, greatly prostrated and lay limp in its mother's arms. The face was pinched and pale, and the pulse was faint and thready. During the

night a number of smaller movements occurred, all containing blood. They ceased during the following day; the child gradually recovered its strength and has since developed normally.

Absolute rest was enjoined, even nursing being discouraged as far as possible. Small doses of paregoric were given for the purpose of checking peristalsis and securing more complete bodily quiet.

The point of particular interest in the case was its late development. Such hemorrhagic conditions usually develop during the first three or four days of life and occur with great rarity after the first week. This case, notwithstanding its late occurrence, presented all the clinical aspects of melæna as it appears during the first six days of life, and seemed to be due to the same pathological conditions. There was nothing in the child's history or surroundings which offered any explanation for the occurrence of the attack.—*Archives of Pediatrics*, Sept. 1896.

### Infantile Scurvy.

JOSEPH LEIDY, JR., M.D.

The following notes are of a case in private practice and one which was under constant observation:

R. D., age eleven months, of healthy parentage, one of three children, came with the history of having rheumatism. The symptoms were entirely referable to the lower extremities, which were painful to the touch, though no evidence of swelling could be detected. When the soles of the feet were pricked the child would make partially successful efforts to draw the limb up; pressure along the femur or over the knee-joints occasioned considerable pain. Petechial spots were present over both tibia and on the lower gums. There was slight anemia. Heart and

lungs negative; bowels loose. As the patient was upon sterilized milk, the diet was continued, and in addition beef juice and orange juice; but little progress was made. At the end of ten days the gums were decidedly spongy, the limbs not at all improved (owing to the tendency to diarrhea), and considerable gastro-intestinal irritation. Pasteurized milk with Fairchild's peptogenic powder was substituted for the sterilized milk, in addition to beef-juice and orange-juice, which were continued. Without it were possible to witness the rapid progress toward recovery which this case made, I fear any account would be incredible. Suffice to say, that in four weeks, with the exception of the anemia, the symptoms had entirely disappeared. The patient had regained entire control of the lower extremities, is now increasing in weight, and the anemia rapidly disappearing.

Rheumatism was again the error in diagnosis in this case, and again a point of considerable interest, as well as the rapid amelioration under change of diet rich in fresh food. This child had been brought up on sterilized milk. Of the nine cases which I have had an opportunity of studying personally, six were fed upon one of the proprietary infant foods, three upon sterilized milk—all bottle-fed.

DIAGNOSIS. From the insidious nature of the affection, the history of the cases and the character of the symptoms there can be no difficulty in reaching a correct diagnosis. To recapitulate: general debility, anemia, sponginess and bloody extravasation of the gums; petechiæ and ecchymoses upon the lower extremities when present; the enlargement and tenderness about the joints and along

the shafts of the bones; and the apparent loss of power, muscular rather than nervous in origin, in infants fed upon any of the proprietary foods or sterilized-milk preparations, present a picture almost characteristic. The slight fever (frequently entirely absent) became an important point in the differential diagnosis from *acute rheumatism*, the swelling in scurvy being above and outside of the joint proper—in rheumatism confined to the synovial sack; and, finally, the *therapeutic test*, justly so called, which is invariably attended by the rapid amelioration of the symptoms.

The history of the case, the absence of evidences of rickets, and the subsidence of the symptoms under treatment, all go to exclude the diagnosis of an affection the symptoms of which are usually of pre-natal origin. In those cases where scurvy occurs in children previously the subject of rickets, the diagnosis might appear difficult, but even here the rapid disappearance of the acute symptoms under treatment would aid us in eliminating a distinctly constitutional disease.

TREATMENT. Of treatment sufficient has been said. The use of a diet rich in fresh foods, of a character suitable to the age of the child, beef-juice and orange-juice, with the use of Pasteurized (or what has been termed humanized) milk for infants, has proved ample in our hands. Medicinally the use of minute doses of citrate of iron internally, massage, hot and cold douches to the lower extremities, are of use where the progress is slow in those cases of pseudo-paralysis. — *Boston Medical and Surgical Journal*, Oct. 29, 1896.

# ANNALS OF GYNÆCOLOGY AND PÆDIATRY.

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## ORIGINAL COMMUNICATIONS.

### APPENDICITIS.

BY S. POZZI, M. D.  
OF PARIS.

After the voluminous works which have recently appeared on Appendicitis, both in France and in other countries, and the important discussions to which they have given rise, it may be said that the history of this disease is about complete at the present time. Writers have particularly endeavored to distinguish different clinical types, characteristic in their progress and symptoms. But are we in the right to affirm that to each one of these forms corresponds a particular therapeutical indication? Are there *medical* cases of appendicitis, in which expectant treatment should be the rule, and others so called *surgical*, in which the surgeon should operate either immediately or after a more or less long delay? This question is far from being settled, and the hesitation which still exists in the minds of many practitioners has often had very unfortunate con-

sequences. The point of this paper is to report a case that I have recently had under my observation, which appears to me very instructive in this point of view. It was a case in which the progress of the accidents, which were in appearance very mild, would place the appendicitis in one of the forms in which the majority of writers would still advise temporizing and even desisting entirely from an operation. I operated, nevertheless, and I found such lesions that accidents of the gravest kind would not have long delayed in appearing if I had not actively interfered.

Before making my remarks on this case, I would like to report it in detail. Certainly I do not pretend that it offers anything very new — similar ones will be easily found in the various medical journals — but it appears to me that surgeons have not as



yet endeavored to point out all the interesting and instructive facts which may be learned during an operation.

—*Case.* On the morning of April 9th, 1896, the patient, who for the last two days had had a slight diarrhœa, was awakened by shooting pains, with chills, and was taken suddenly ill in the water closet with an extremely violent pain in the right iliac fossa, and a few minutes afterwards he vomited a mucus which contained neither bile nor remnants of food.

His physician was called, and when he arrived a few hours later, the patient, who the year before had had hepatic colic, stated that he was again having another attack. Nevertheless, by a careful examination, the doctor had no difficulty in recognizing the accident as being of entirely different nature.

The abdominal pain, which had not stopped since the morning, had manifestly begun, as the patient said, from the classical point of appendicitis, that is to say at two fingers breadth and a half inwardly from the anterior and superior iliac spine on a line uniting this with the umbilicus. Since its beginning the pain had extended through the entire right half of the abdomen. It presented two very distinct points of intensity, one of which was the original starting point, and the other in the right flank behind under the lower aspect of the liver. This latter point was essentially manifest when the first point was irritated by abdominal palpation: the patient who watched

himself and explained his sensation with a great deal of intelligence and coolness, said that it felt in this point as if there was a foreign body whose extremities corresponded to each of the painful points.

There was no tympanism or any special doughy feel. The liver was normal in size. The gall-bladder was not distended and exploration in the region of the liver was not particularly painful.

There was no jaundice, but the complexion was rather earthy, the tongue was coated and the nausea persisted. The urine was high colored but without any biliary pigment. There was a slight fever of  $38^{\circ}.2$  in the axilla. In presence of these symptoms Dr. B. could not admit either any liver trouble or kidney complication and immediately considered the diagnosis of appendicitis.

This interpretation, which seemed perfectly justified by the evolution of the symptoms and the localization of the pain, was still more probable on account of the antecedents of the patient which were as follows:

The patient, who was at that time 40 years of age, said, that since he was 11 years old he had been taken several times with attacks of colicky pains, which appeared particularly awakened when he had taken cold or had been over tired. These attacks, with pains situated in the right flank, lasted about two or three weeks. When he was at college he had remarked he could not remain seated two hours running without feeling painful sensations always in

the same region, which disappeared when he walked and when he was warm. At eighteen he was taken with gastric symptoms, which appeared as very sharp pains over the stomach with vomiting and absolute intolerance of any liquid or solid food. He thought himself cured after a course at Alet.

Other similar attacks have occurred since this time every three or four years. In 1890 Dr. B. had occasion to take care of the patient for the first time for dyspeptic symptoms, which have occurred since this time about a year ago in the form of symptoms of hyperacidity. In 1895 the patient had hepatic colic with jaundice, tenderness over the gall-bladder, etc. The diagnosis was confirmed by Dr. A. Robin and recurred several times during six months. Afterwards the patient was sent to Vichy, and there he could not, so to speak, take any hydropathic treatment. In fact, in the beginning, he was taken every night with free and reiterated vomiting of badly digested food and acid liquid. Washing of the stomach was performed which was the only thing causing the vomiting to stop and relieving the patient.

No trouble is to be mentioned since this time. The patient continued to wash his stomach at different times and found that he was very much relieved by it.

Treatment having in view to quiet the intestine was instituted, including opium poultices, warm applications on the abdomen and a milk diet

*April 10th.* The next day the

patient felt better, the fever had fallen and the temperature was only 37.2 and no new accidents had occurred since the day before. Nevertheless the local symptoms persisted, and I was called in consultation.

On account of the distinct localization of the pain in the intestines I advised immediate operation. It was performed the next day, April 11th. The patient passed a good night and felt very much better, there was no fever, and he only suffered when pressure was exercised over the painful point. He had entire confidence in our diagnosis and was decided to have his abdomen opened under these conditions.

*Operation.* Exploration of the region only allowed us to feel a resistance more marked in the region of the cæcum but without tumor or fluctuation. The incision was similar to that made for ligature of the external iliac and was 10 centimeters in length; we came immediately down upon the large intestine, but in drawing it successively from above and from below, it was found that it was not the cæcum but the omega coil which was deviated to the right. It was pushed inwardly, and the finger introduced in the wound recognized above the upper angle of the cæcum, upwards and backwards, the resisting feel of an indurated cæcal appendix, consequently the incision was enlarged upwards for about three centimeters and two fingers introduced into the wound allowed us to detach the appendix which was adherent to the posterior aspect of the

cæcum. This detachment was quite easily accomplished, and the appendix thus moved from above backwards following a semicircle, could be drawn out in the wound. The organ was found turgid, violet in color, hard, and in size a little larger than the small finger, and it presented at a certain point a grayish ulceration of soft consistency and of a gangrenous aspect. The meso-appendix contained a large amount of adipose tissue, which was œdematous: there was no trace of pus in the neighborhood of the cæcum. It was supposed that the fibrous tissues which surrounded the appendix still formed a sufficient barrier against the spreading of the infection.

The wound being well protected by aseptic compresses which completely isolated the field of operation, we started to ligate and remove the appendix. The presence of a necrosed perforation evidently had infected the focus and would probably produce secondary infection of the silk, and consequently this ligature was not used and strong catgut was employed. The meso-appendix was first tied and detached, then a ligature was placed as near the cæcum as possible. Over this first constricting band a second strand of catgut was tied, and the appendix cut off. As this organ was diseased in its entire length, the small stump which extended beyond the ligature was of course made up of diseased tissue. It was consequently carefully cauterized with the thermo-cautery in order to sterilize it, and then this small sterile pedicle was

carefully pushed into a fold of the cæcum and kept there by a few catgut Lambert sutures, and, when these were completed, it was entirely hidden, and the cæcum presented a uniform surface.

The abdominal wound was sutured with catgut in three stitches, but in the middle of the incision a strip of iodoform gauze was placed which extended down as far as the cæcum, thus draining the entire length of the wound.

No pus or calculus was found during the operation.

The progress of the case was in every way simple. The temperature did not rise and the capillary drainage with the gauze allowed of the evacuation of a large quantity of bloody serum. The drain was removed on the third day and a rubber drain was put in its place, which was progressively shortened and entirely removed on the twelfth day. No feces or calculi were found in the dressings. Sixteen days after the operation cicatrization was complete excepting in an extent of about one centimeter, which corresponded to the point at which the drain had been inserted.

The patient felt no pain, either on pressure or spontaneously, and the region of the operation was perfectly soft. A considerable change took place exteriorly: the complexion which was very earthy before the operation became normal.

*Examination of the specimen.* The appendix measured four centimeters, and its size in the fresh condition was larger than the small finger. It was

of a red violet color and of an elastic consistency. It was quite cylindrical in shape and slightly swollen at its free end. At the junction of the two upper thirds with the lower third was found a crater-shaped deep perforation which allowed a female catheter to pass; its borders were irregular and gray. All around the perforation the tissues were necrosed to the extent of about a half a centimeter. A longitudinal section showed that the walls were thickened, the mucous membrane was infiltrated and hypertrophied. No trace of a calculus could be found or any concretions but only a few drops of a thick blackish liquid having a fecal odor. There was no obliteration or stricture in the calibre of the organ.

*Bacteriological examination.* The liquid contained in the appendix was inoculated on bouillon, which became cloudy. Gelatine was not liquified.

The inoculations grew on agar and in the bouillon. The preparations showed that we were dealing with a bacillus having the morphological characters of the bacterium coli, it was decolorized by Gram's solution. The culture was pure.

Direct examination which had been made of the liquid only showed the bacterium coli without any other organism.

To sum up, here was a man in whom the first attack of a well characterized appendicitis took place. Those attacks which had preceded this one had perhaps been more or less concealed by other symptoms attributed each in turn either to a disease of the stomach or an affection of the gall-

bladder or liver. This first distinct attack of appendicitis colic accompanied by a fever of very moderate degree and of short duration without any reaction in the peritoneal cavity, followed by a distinct remission which was almost immediate, would surely make it enter into one of the lighter forms, such as the so-called *medical* appendicitis.

According to one of the most noteworthy works written on this subject by Talaman, and which serves as a guide to many practitioners, this case could not have been placed in any one of these three classes, namely: simple *parietal* appendicitis, *acute appendicitis with localized peritonitis* or *chronic appendicitis with an acute manifestation*. It would be in the first class that it would seem most natural to place it. Now, according to the author that I mention, this form is essentially medical and will get well without operation. Now could we have nevertheless been led to believe that our case was an acute appendicitis with a localized peritonitis by basing our conclusion on the intensity of the local pain? Here again, according to the same guide it would have been necessary to wait till the eighth to the twelfth day before acting until the signs of suppuration would have appeared. After a fortunate analysis of the confused history of the case, could we have rather formulated the diagnosis of chronic relapsing appendicitis with an acute attack? Here again we have received the advice in this case to temporize, in order to operate under good circumstances.



I cannot insist too strongly on this point, namely, the only clinical form for which immediate interference would have been described, *acute perforating appendicitis*, was precisely that form which was clinically impossible to make out, as my case proves. Nothing in the progress of the symptoms would have allowed of making this diagnosis. The treatment would have consequently been medical. Nevertheless there was a perforation with a commencing gangrene, which would have quickly brought about very severe accidents.

Now what does all this mean? Should we entirely reform classical descriptions and refuse to admit distinct types of appendicitis? In no way. These divisions are useful in that they permit to distinguish the characteristics of the disease, but it is very important to be on one's guard regarding the therapeutical deductions that have been drawn from the descriptive divisions of the disease. Keeping these types just as they are, I would propose to add a complementary proposition: Every appendicitis which has been diagnosticated, no matter how great may be its apparent mildness, and no matter to what clinical type it belongs, may rapidly end in perforation with all its *consequences*.

I shall now rapidly go over an anatomical peculiarity of my case and insist on its value from the point of view of the etiology and the pathogenesis of the accidents. I found in my patient an appendix entirely bent at its insertion on the cæcum and bound to the posterior aspect of the latter

organ. This is a condition very frequently met with by surgeons. Torsion of the appendix produced by adhesions or bends has also been noted.

In many cases it appears even that this bend or torsion of the appendix forms in itself the entire lesion. Such are the cases of Bull and Schrady so often cited; The latter's case is of particular importance: it was an autopsy of a man who had had four characteristic attacks of appendicitis with symptoms of peritonitis. Each time the symptoms lessened an immediate operation was deferred. The autopsy was made as the patient had requested, and it was found that the appendix was perfectly healthy, was not even thickened; in the peri-cæcal tissue, the peritoneum presented the slightest trace of inflammation.

For those writers who explain the painful accidents, the colic of the appendix, by obstruction due to calculus, facts of this kind, which, I repeat, are of enormous importance, are extremely difficult to understand. They were obliged to suppose that the calculus after having momentarily become engaged in the appendix, was pushed back into the cæcum, but this is a simple hypothesis. For that matter other cases would appear to demonstrate the often exclusive part played by a flexion of the organ.

Treves has mentioned a case in which the end of the appendix was so large, so indurated and so perfectly round that it appeared to contain a fecal concretion. The appendix was bent on itself and in freeing it and straightening it out, the mucus flowed

into the cæcum, and this apparent solid tumor disappeared at once. I have recently observed myself the evident indications of a bend or a torsion of the appendix. Four days ago I operated on a young man who at different times had presented attacks of appendicitis. The last attack which dated back five months, was followed by an evacuation by the rectum of a certain quantity of pus. On the morning of April 23rd, after much fatigue this young man was again taken with colics with a characteristic painful point and a slight elevation of the temperature. I operated on him the next day. I found a thick sclerosed appendix partially obliterated near its end, containing three small stercoral concretions without any stricture between these calculi and the orifice of the cæcum. By the naked eye there was no sign of recent inflammation of the appendix, but it was bound down by a strong adhesion which produced a bend in its direction and a torsion on the axis of the organ. Momentary exaggeration of this torsion by distension or weight of feces in the cæcum was without doubt the only cause of the reappearance of the accidents.

I would add that this pathogenesis in no way contradicts that which has so brilliantly been upheld before you by Prof. Dieulafoy. Although he does not believe in the great influence of momentary occlusion of the appendix, yet an obstacle of this kind transforms it into a closed cavity and thus provokes the immediate exaltation of the virulence of the microbes

which are contained within this cavity. From this fact we may understand the importance of strictures of calculi. It is precisely in the same manner that torsion acts. It obliterates the canal of the appendix at the bend in just the same manner as a lateral ligature. It may be said that it has a double effect, because to the occlusion of the cavity we should also add the compression of the vessels and the ischemia which results. These two factors act at the same time and actually help each other in order to bring about inflammation in the first place and afterwards gangrene. There then occurs a process which is similar to that which takes place in torsion of cysts of the ovary. Every surgeon knows that this accident is marked by the sudden appearance of extremely sharp pains, and that sometimes, although not always, it is followed by mortification of the walls of the cyst and by peritonitis. May not appendix colic be the consequence of torsion of the appendix? As to inflammation, it occurs here all the more rapidly, because we are dealing with a hollow organ normally inhabited by microbes whose subdued or latent virulence is immediately exalted. Another accident occurs. What are the causes of abnormal direction of the appendix? I believe that they are of two orders. The first are congenital and produce a bad position with a kind of predisposition to a more pronounced torsion; this latter finally becomes complete and produces bad effects under the influence of other causes of pathological origin. Anatomists know the large number of varieties that the ap-

pendix may present as to its dimensions, shape and direction. The organ is an embryonic remains and we all know that *these embryonic organs* are subject to frequent evolutions and abnormalities. (I have insisted on this point in my studies on the hymen.)

There are shapes and congenital forms of the appendix which are very variable. They may be due to the greater or less shortness of the mesocæcum. The *valve of Gerlach* which is a little semi-lunar fold in the mucous membrane, which half closes the orifice of communication between the cæcum and the appendix, is also extremely variable. From this fact there exists from birth in some subjects a certain degree of bending or of stenosis of the canal of the appendix. Now if troubles in the functions of the cæcum occur, they produce a dilatation or a displacement of this organ, and a bend or the stenosis will be easily transformed into a torsion or a complete occlusion of the appendix. In other cases certain patients are congenitally predisposed to appendicitis by a special anatomical condition. This, as may be understood, may be transmitted by heredity. We thus may understand the frequency of the disease in the same family. Perhaps often these anatomical conditions are not foreign to the retention in the appendix of fecal particles which may or may not become incrustated with salts, as happens to all foreign bodies remaining in cavities. Thus we might explain the frequency in the same

family of lithiasis of the appendix, using the expression of Dieulafoy, unless it is preferred, as by my eminent colleague, to attribute it to a diathetic origin.

When this bad position of the appendix has been once exaggerated and fixed by adhesions, it becomes one of the principal factors in relapsing appendicitis. Now in fact any evolution in the size or the position of the cæcum acts rapidly on the appendix. From this without doubt is the well known influence of fatigue and violent exercise in the re-appearance of the accidents. It goes without saying that the presence of calculi in the site of the appendix joins its action to that of the bend or of the torsion, whose effect it completes by producing the transformation of the cavity of the appendix into a closed cavity and provokes the growth of bacteria. Consequently any former attack of appendicitis favors the return of a new attack. Certainly laceration may often occur and the patient get well, or at least get well without interference, but the mildness of attack can never guarantee that it will not reëccur or that future attacks may be without gravity.

Those patients whose appendix has once been the seat of the disease are always in a kind of morbid condition: a digression in eating, taking cold or an excess of no matter what description, are sufficient to again produce a pain in the right iliac fossa. They may be compared to women who have chronic oöphorosal-

pingitis, for both class of cases contain a diseased organ in their pelvis. And even if the disease does not constantly make the patient aware of its presence, there is all necessity to deliver them from it. To terminate, I would formulate the following conclusions :

1st. The various clinical types which have been described by various writers (super-acute perforating appendicitis, catarrhal appendicitis, simple parietal appendicitis with colic, acute appendicitis with localized peritonitis, sub acute appendicitis, chronic relapsing appendicitis, etc.) should be distinguished in the symptomatic point of view.

2nd. But as to the prognosis it

has a tendency to become mixed up. It should be remembered that every diagnosticated appendicitis, no matter what may be its type and no matter how mild it may appear, may rapidly end in perforation : if it gets well, it is generally followed by a relapse.

3rd. Every time that an appendix gives rise to local and general symptoms, no matter how severe they may be, the organ should be removed without delay. Either these accidents will immediately put the patient's life in danger, or if they momentarily get better, they leave the patient with an infirmity which is often disagreeable and always menacing.

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## PRIMARY CANCER OF THE LIVER SIMULATING A FIBROID TUMOR OF THE UTERUS, REMOVED BY LAPAROTOMY.\*

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BY DR. ANDRÉ LAPOINTE,

*Assistant in Anatomy, Faculty of Medicine of Paris, France.*

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Surgical interference for cancer of the liver is so exceptional that the following case appears worthy of recording. There is nothing encouraging, however, because the patient died two days after the removal of the tumor that I now present to this Society. The patient was a young woman of thirty-four years, sent to Dr. Paul Segond by Dr. Henrotin of Chicago with the diagnosis of fibroid tumor of the uterus, which diagnosis was

based, not only on the signs furnished by physical examination, but also on account of the constant metrorrhagia, which had been present for about a year. Abdominal palpation revealed the presence of two large masses united by a smaller band. One of them, filling the pelvic cavity, appeared to be connected closely with the uterus and moved with it : it was as large as two fists and was soft, while a distinct fluctuation led one to suppose that he was dealing with a fibrocystic tumor. The other mass,

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\* Communicated to the Anatomical Society of Paris, October, 1896.



a little larger than the former and situated above it and to the right, could be distinguished from the first by its hard consistency, its bossed surface recalling the characters of a sub-peritoneal fibroid in every respect. Considered altogether, the tumor formed by the two distinct parts, was palpated from below upwards and from left to right, extending into the pelvic cavity with a prolongation into the right flank; its upper part extended above the umbilicus to the extent of four fingers breadth, and the tumor appeared all the more limited at this point because it was separated from the border of the ribs by a line of complete sonority. Nevertheless it was fixed and no transverse movement could be given it. It was thought that secondary adhesions existed in the region of the right kidney, but it was in no way suspected that there were any connections with the liver.

There was no other symptom either in the liver or in any of the other organs; nothing but the metrorrhagia, with rapid and progressive loss of strength for the last year. As these supposed fibroids extended considerably above the umbilicus, Dr. Segond proposed performing total abdominal hysterectomy.

On October 19th median laparotomy was performed, the peritoneum was incised, the mesentery pushed up and a tumor of a violet color, soft consistency and regular in shape with its surface covered by a large number of vessels filled with blood appeared extending into the pelvic cavity.

Dr. Segond immediately saw that it had no direct relation to the uterus. It covered the fundus like a cap and was only united to it by a few loose adhesions which were torn away without difficulty. But the walls of the cyst which were extremely friable, were broken when its removal from the abdomen was tried, and a blackish bloody liquid ran out into the peritoneal cavity. The upper point of attachment also became torn away, and the cystic part of the tumor came spontaneously, so to speak, into the hands. The hard mass was in its turn drawn out of the abdomen, and it was then found that it was attached on the sharp border of the liver in front of the gall-bladder. It was held there by a very poorly nourished pedicle, which measured three good fingers breadth in width and whose thinness explained the presence of the intestinal sonority at this point.

The pedicle was seized between two long clamps and the tumor removed. As Dr. Segond intended to suture the hepatic stump in the upper part of the abdominal wound and as the gall bladder got in the way he was obliged to separate the latter from its position. The pedicle was then sutured to the abdominal walls, and the clamps were left in place, while the abdominal incision was sutured excepting at its upper angle. Let me remark that the aspect of the gall-bladder was absolutely healthy, and that the convex aspect of the liver showed to the exploring finger no suspicious nodes. The pelvic organs were normal.

The very marked weakness of the patient at the time of the operation only continued to increase, and she died on the third day without giving any sign of infection. An autopsy could not be performed. The tumor was made up of two parts which were distinctly different, united one to the other by an intermediary portion of small dimensions. The lump that filled the pelvic cavity and covered the fundus uteri was made up of a fibrous wall which was very vascular and only slightly resisting. This was lined by a thick layer of vegetations which were extremely friable, and a large part of which was emptied when the pocket broke at the time of the operating. In some parts there were degenerated necrosed masses of a yellowish color.

The upper lump was hard and irregular and when cut had the consistency of a scirrhus. It was covered by a capsule and distinctly separated from the parenchyma of the

liver which appeared healthy at the point of section of the pedicle. It presented a distinctly lobulated formation which recalled slightly the aspect of a section of the brain.

Histological examination has not as yet been made, but it is not absolutely necessary in order to be affirmative as to the cancerous nature of the growth.

To sum up, we were dealing with a primary cancer of the liver, which had become pedunculated, and a portion of which had undergone cystic transformation. This unusual condition cannot be classed either in the massive type or in the nodular form. The evolution of the tumor towards the pelvic cavity and its secondary relationship with the uterus, the absence of the usual hepatic symptoms produced by cancer of the liver and lastly the metrorrhagia, form and number of particular points, rendered almost inevitable a mistake in the diagnosis.

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## SOCIETY REPORT.

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### Detroit Gynæcological Association.

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## CARCINOMA OF THE UTERUS.

BY F. D. SUMMERS, M.D.

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The subject that I have selected for my paper this evening is one of great importance to the general practitioner, for it is he that is more likely to meet with this class of cases, at an early stage, while the surgeon is more likely to see them when they are quite advanced and come to him

for some radical means for relief. It is well to consider first the structure of this organ that is subject to such an unfortunate disease, which causes the death of a large per cent. of our women. The uterus is made up of three coats, an external serous coat, a middle or muscular coat and an in-

ternal or mucous coat with connective tissue, blood vessels, nerves and its ligaments, and divided into two portions, cervix and body with the broad upper portion called the fundus.

Carcinoma is a malignant growth characterized by a net-work of connective tissue whose areolæ are filled with cell masses resembling epithelial cells.

During the last twenty years it has been the opinion of the pathologist that new epithelial cells in tumors arise exclusively from old epithelium and this belief today has general acceptance. There was doubt for some time as to the so called carcinoma affecting some tissues in other parts of the body as the peritoneum, pleura and pericardium which have endothelium cells, for all there were many cases on record through the work of the pathologist and his skill which might be infallible, should not be doubted by the surgeon who wanted to place it as an endothelioma but later researches have proven that the endothelium cells are of archiblastic origin and belong to the class of epithelium cells, proving that the carcinoma is still in this tissue of an organ that will give it an epithelial origin. \* It is very prone to local extension, the advancing tumor cells in the periphery, making their way through the lymph spaces and forming new foci. They are liable to fatty, colloid, mucous and amyloid degeneration and very prone to ulceration, to hemorrhage and simple inflammation. Sometimes they become

partially calcified and are combined with other forms of tissue in mixed tumors. They may occur at any age, but are more frequent between forty and fifty. According to statistics there are about thirty-one per-cent of the cases of carcinoma occurring in women that have their origin in the uterus. It has its origin more frequently in the cervix than in the body of the uterus but the body is not exempt from being the original seat of trouble.

The uterus may become affected by three varieties of carcinoma; First by an epithelioma which affects the lining membrane of the cervical canal, the lips and the adjacent parts of the vaginal portion of the cervix. It consists of an infiltration of the tissue of the cervix with numerous epithelial cells arranged in nests or shoots, so called, trabeculae, together with an hypertrophy of the normal papillæ of the cervix. There are two varieties of this form of epithelioma, the first in which the interstices between the hypertrophied papillæ are occupied by these accumulations of epithelial cells arranged in regular clusters and shafts. The development of the papillæ in this variety may be so extensive and rapid to produce a tumor extending outward from the cervix that it may reach the size of a hen's egg or a large cocoanut, giving it the resemblance of vegetable cauliflower from which this variety receives its name. The second variety of this form of epithelioma has the characteristic infiltration of the superficial tissue of

the cervix with the cellular elements occurring in the first variety but lacks the hypertrophy of the papillæ found in the first variety which gives it the appearance of an abraded or ulcerated surface.

The encephaloid is the second most common variety affecting this organ; this is a diffuse infiltration of either the round, spindle, or caudate cells with a proliferation both of which together produce a decided enlargement of the cervix. In this form of disease there is no ulceration or open surface to produce bleeding. The cervix is enlarged, soft and nodulated in outline and by a gradual extension this form of cancer will extend up into the body of the uterus. In these cases it is often difficult by digital examination to distinguish it from a hyperplasia of the cervix. The scirrhus is the third variety of this trouble and is similar to the one previously described, having an increase of the connective and fibrous elements in its manner of enlargement.

The difference is that the hyperplasia of the fibrous tissue is greatly in excess over that of the cellular elements. The cervix is enlarged and nodular and the tissue is so hard and dense that it cuts like cartilage.

There is no history of a bloody discharge and upon inspection you find no erosion of the cervix but find a nodulated enlargement. It is much slower in growth than those previously described: Many times clinically it is impossible to distinguish the different varieties and it should

then be left to the pathologist for diagnosis. Much has been said in regard to the cause of carcinoma and I feel that the most frequent cause is from irritation kept up by a neglected lacerated cervix, but there are undoubtedly many other causes, for Dr. Zweifel reports a case in a girl of thirteen where it was necessary to perform vaginal hysterectomy.

The statistics show that the colored people are not very prone to carcinoma in comparison with the white people.

In conclusion of my paper for discussion I will take the liberty to relate one case for the purpose of bringing out a clinical history. Mrs. Martha H.—aged 31 years, occupation housekeeping, had given birth to four living children and four miscarriages, each being normal in character of labor. The last birth occurring about three years ago. Menstruating every three or four weeks, lasting about seven days with an excessive flow. She had a leucorrhoea with a bloody discharge at times, especially after sexual intercourse, which was somewhat painful. Appetite and digestion good and appeared to be well nourished. Upon examination I found a cervix that had been lacerated bilaterally and repaired about a year and a half previous to this examination. The cervix was very hard and nodulated with a denuded looking endometrium of the cervix with a very dirty sanguineous looking discharge. I advised her to return again to the city in a few days and



enter St. Mary's Hospital for further examination, and said that probably it would be necessary for a complete removal of the uterus, to which she consented and at her return I gave her chloroform and took out a section of the cervical tissue which I turned over to Dr. E. H. Troy for pathological examination, and it proved to be a carcinoma and he advised a complete hysterectomy at once. I immediately ordered the necessary preparations for a vaginal hysterectomy and operated October 15, removing the whole uterus with the ovaries and fallopian tubes intact.

There are many methods of vaginal hysterectomy, but I will only relate the one used in this case. I first incised the vaginal vault completely around the cervix, dissecting up the anterior portion first pushing my way through into the anterior cul-de-sac and then posteriorly through into the posterior cul-de-sac or Douglass Pouch, having the uterus well pulled down with the volcella forceps, the broad ligaments were ligated in about three places on each side and the uterus excised. As soon as the uterus was removed, I stitched together with cat-gut the anterior portion of the peritoneum and vaginal wall, leaving a small opening for drainage through which I pulled my ligatures that were tied on to the broad ligaments and packed the cavity with iodiform gauze. My patient made an uninterrupted good recovery and will probably have no return of the trouble as it was

taken very early which should be done in every case wherever there is any suspicion of carcinoma, for a few months delay might mean the involvement of other tissues, which would give it a fatal issue and prevent the chance of relief by the surgeon.

I believe that the whole uterus should be removed in all cases of carcinoma whatever may be its seat of location, and I prefer the vaginal route.

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### DISCUSSION.

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DR. FRITZ MAASS — I was very much interested in DR. SUMMERS remarks on the more or less rapid growth of some carcinomata, because I have lately seen a case which showed a remarkably slow growth. Fifteen years ago a little tumor appeared on the head, which was extirpated but the wound never healed. About six years ago she consulted someone in St. Mary's Hospital who told her it was a cancer, and that the only thing to do for it was to operate, but she refused. I saw her for the first time this summer when the tumor was about the size of a hen's egg and it had then been growing 15 years and the skin was perfectly movable on the scalp. At first I did not think it was a carcinoma, basing my opinion on this slow growth. It looked like a papilloma and was caused by a microbe. I advised applying bandages saturated in bichloride, etc., and the tumor decreased, but the treatment caused later on severe hemorrhages and had to be abandoned. Fourteen days ago the

tumor looked quite different and I cut out a little piece and examined it microscopically and found it to be true carcinoma.

DR. SPRAGUE — I agree with the doctor in his views as to the necessity and method of operation. I believe that every case should be treated by hysterectomy, for as I understand it there are frequently cases in which the malignant degeneration begins at the fundus and neck at the same time, and it is almost impossible to ascertain when the fundus is affected. At any rate the womb that has begun to degenerate will probably never be of further use and there is no reason why hysterectomy should not be done. I think too that vaginal hysterectomy is the preferable method, the shock is less and the convalescence more rapid than by the abdominal route.

DR. LONGYEAR — The description of the various forms was well made, and the point the doctor makes of giving these cases early attention is extremely important and should be emphasized. The cases that we see that have passed the time for operation form a large percentage of the cases of carcinoma brought to us, they involve the broad ligaments, bladder, rectum and vaginal walls, so that it is impossible to do anything beyond giving palliative treatment and it is astonishing to find how often the general practitioner makes the mistake of procrastination in these suspicious cases. If he is in doubt he should always refer to someone of large experience. Only a

short time ago a woman came to Harper, from the northern part of the state, who said she had been ailing for a long time and her doctor had at last made up his mind that she ought to be operated upon. When I told her she had a cancer she was so surprised and horrified that she was completely used up, but the worst of it was, the disease was too far advanced for operation. It is always a sad thing to the surgeon to tell a patient that, and yet we have to frequently do it in these cases, but it could be usually avoided if the general practitioner would keep in mind that one rule, to refer doubtful cases to someone whose experience will help him in diagnosis. In DR. COOK's case it may be carcinoma, but with no foul discharge and no hemorrhage it is probably not, though it might be an incipient case. Usually we get the hemorrhage or the ichorous foul smelling discharge. A few days ago I had a case with very little discharge, but a history of hemorrhages, an almost constant flow of blood for several months. In that case the uterus presented to my mind rather an unusual appearance for carcinoma. The disease seemed to extend from the cervix almost clear up to the fundus by a well defined line right in the muscular structure of the body of the uterus. I gave a piece of the tissue to DR. MAASS for examination and he pronounced it carcinoma. There was no distinct tumor of the uterus. I operated more upon the general appearance and the hard, solid, sort

of bony feel that the uterus had without any distinct induration. The paper has dealt a little with operative procedures. I see the doctor operates by the ligature. I like the idea of the ligature because it is more in accord with my idea of ideal surgery, but I use the clamp work because it makes a rapid operation — the statistics show that more cases recover by the clamp, but I always have a feeling of repugnance for it every time I use it. When I have operated by the ligature the patients have suffered much less, but it makes a longer operation, is more difficult, the drainage is apt not to be so good, and then the clamp has this additional advantage, it makes a slough beyond where you cut, so that if the disease has extended a little beyond, your crushed tissue in that slough may remove it. An interesting point came up a little time ago in a paper, in which the author recommended the use of the cautery in the removal of the uterus in these cases, and argued that the heat of the cautery had a tendency to prevent the return, and it brought to my mind a case I operated on by the clamp method. The woman made an ideal recovery and returned home. It had been a neglected case and the vaginal wall was involved. In four or five months she returned because of slight hemorrhage and pain. I found in the angle of the wound a little opening into which I could pass a probe about an inch and a half. I applied the Paquelin Cautery and in three days she went back

home. In six months she returned again, when I expected to find an immense involvement, but to my surprise there was less evidence of growth than the time before and I repeated the operation and since then she has not returned. It will be interesting to note if it recurs, but then if we can give her a year or two it will be a great gain for her.

DR. SUMMERS — In regard to DR. MAASS' case, it is interesting to note the length of time that carcinoma may take to develop, and of course with carcinoma of the uterus it might extend for a long time before it was discovered by the physician in charge. The general practitioner sees most of these cases and is often to blame for leaving them until it is too late to operate, but sometimes the patients will not consent to examination unless the symptoms are very severe. A young physician came to me today to consult me about a woman who had all the symptoms of carcinoma, but would not submit to an examination. He suggested bringing me to see her, but she would not consent. In regard to the ligature that DR. LONGYEAR spoke of, from what I have seen and done I prefer it to the clamp. While I was taking my special course in New York I saw one of the professors operate by the latter method. He removed the clamp in 38 to 40 hours. Very severe hemorrhages set in and he had nothing ready for a laparotomy, but he collected a few things together and without any antiseptic precaution he went into the abdominal cavity and picked up the bleeding points. After he got through he said it would be the last time he would use the clamp.

## REVIEW OF GYNÆCOLOGY.

### Gonorrhœa in its Relation to Marriage.

BY DR. CARL PROEGLER.

Physicians who treat sexual diseases, are very often asked by patients, especially Syphilitics, about marriage. Numerous works especially "Fournier's Syphilis and Marriage," will enable the physician to answer such questions intelligently. But if a patient, who has contracted gonorrhœa, leads off with similar questions, the physician will hardly find in any of the text-books on sexual diseases, Finger included, a satisfactory answer. This seems the more strange, as many writers, both foreign and native, have treated the subject of chronic gonorrhœa or gleet in its latent form quite extensively. Noeggerath, of New York, was the first who treated the subject more extensively and drew the attention of the profession to the danger arising from marriage with gonorrhœics. He formulated a dictum, that the wife of any man, who had gonorrhœa before marriage, will, with few exceptions, develop later on a latent gonorrhœa.

Ricord and Lewin, and the statistics of the German army, estimate that about 80 per cent. of men in large cities are affected with gonorrhœa. A man cannot be pronounced cured, who does not show any more discharge, unless a microscopical examination finds a normal secretion from the urethra. French and German military surgeons say that 90 per cent. of gonorrhœas are not cured and that of 100 women, who have married men with supposed gonorrhœa, only 10 will be found sound. Even with a limited material on my hands, I must consider

this assertion correct.

Bumstead, Schwartz, Ricord, &c., found that 10 to 15 per cent. of men were affected with incurable gonorrhœa, caused by neglect of their own or through mismanagement or ignorance of their physicians.

Saenger found that of 1930 cases, tabulated by various observers, in 230 or 12 per cent., or 1-8 of all cases of pyosalpinx, and other surgical diseases of women, gonorrhœa was the primary cause. In 161 cases, which were personally observed by him, 29, or 18 per cent., were affected with gonorrhœa. We may safely assume that 1-4 per cent. of all the cases seen by gynæcologists, have their origin in gonorrhœal affections. Think of the fearful amount of suffering and invalidism caused by men with chronic gonorrhœa, who either through ignorance of their own or their physicians are allowed to marry. We can readily see that gonorrhœa is not such a harmless affection after all as a good many suppose it to be, and that one prescription and a clap syringe will never cure or even abort a case of gonorrhœa or gleet. Man is not the only sufferer, but his wife and very often the unborn child has to suffer from the transgression of his parents, and enters the world already seriously handicapped.—Cases of serious complications are often met, not only in the acute stage, as epididymitis, ulcerations, cystitis, &c., but more so in the chronic stage.

Any patient presenting himself to us in such a condition and showing that he is the carrier of infection, which may at any time prove serious and even fatal, ought certainly not be allowed to marry.



Posterior urethritis is always complicated with prostatitis, the gland gets in most cases acutely inflamed, very often leading to abscess formation, pyæmia and death. Strictures, are always present in chronic gonorrhœa, and if not properly treated by gradual dilatation, may cause cystitis, eventually leading to urinary infiltrations, causing intense inflammation; the renal pelvis and parenchyma may be involved, developing nephritis, which may become intractable to treatment, very often ending fatally.

In the chronic stage of urethritis, neurasthenia is generally developed, tormenting the patient. In spite of good appearance and nutrition the patients are usually in a deplorable state. Impotence and pollutions depress the mind, the nervous disturbances spread farther and other spinal symptoms are added. These include the various manifestations of spinal irritation, pressure and pain in the back, formication, cold or heat along the spine, radiating neuralgias and paralysis, particularly affecting the lumbo-sacral plexus. Gastric and intestinal catarrh may set in, caused by atony, the nervous symptoms become more severe, the unstable vaso-motor system causes rapidly changing color, pallor and redness, especially in the face. Digestion is poor, the local symptoms in the domain of the uropoietic and sexual organs attain considerable intensity. No wonder that not a few of these patients terminate their existence by suicide. The number of women who lose their lives through gonorrhœal infection is quite large, and a large proportion lives a miserable existence. Among the diseases we may mention pelvic-peritonitis, perimetritis, pyosalpinx, &c. If they have children, quite a number are diseased with blennorrhœa neonatorum.

Magnus, Graeffe and American physicians, have found that in asy-

lums for the blind about 75 per cent. are caused by gonorrhœal infection, certainly frightful to contemplate. The number of these unfortunates is even now very large in private practice in spite of improved methods of treatment and warnings of eye surgeons.

With these facts before us, the question whether a man shall be allowed to marry who has once acquired a gonorrhœa and considers himself cured of the same, is *socially* and *hygienically* a *very grave* one.

No modern physician will neglect to examine microscopically the membranous deposits of the fauces in suspected diphtheria, and he certainly ought not to be unmindful to use the same precautions in cases of gonorrhœa. It is absolutely necessary to examine the discharge or the urine. In every case the micro-organism must be fully proven to be gonorrhœic.

Gonorrhœa is the only infectious catarrh of the female sexual organs. No other secretion of whatever nature will produce in the male urethra, gonorrhœa, neither carcinoma nor menstrual discharge, nor profuse secretions from whatever cause, nor even the thick white secretions of vaginitis desquamativa of pregnant, chlorotic or serofulous subjects. The carriers of the gonorrhœal contagion or the contagium proper are the gonococci of Neisser. A secretion in which they are found is capable of infection, without them no infection is possible. Without gonococci no gonorrhœa, they are the real and only pathognomonic sign of clap.

The shape of the gonococci resemble that of coffee beans, and in as much as they are diplococci, they are always found joined in twos and twos. The mode of their division gives rise to the circumstance that the gonococci are never found in chains however short, but always in heaps.

They are readily stained by aniline colors, but they lose their staining readily in comparison with the majority of other cocci.

If they are absent, or present in such small numbers, that doubt in diagnosis is justified, more intense sup-puration of the urethra should then be produced by an injection of 1-2 per cent. nitrate of silver or formalin. This produces pus cells, enclosing characteristic cocci groups and a diagnosis becomes clear.

We can only say positively that a man has been permanently cured from gonorrhœa when no cocci, no strictures of whatever kind, no clap shreds according to Fuerbruger, &c., are to be found and the secretions of the urethra are again normal.

If this is the case and only till then we may sanction the marriage of a gonorrhœic. It is the duty of every practicing physician to make himself familiar with bacteriological methods of examination, or if that is not possible, to have the examinations made by some physician who can. All of us ought to be mindful of the facts, what grave responsibility rests on us. If we treat cases of gonorrhœa lightly, the amount of suffering and subsequent ailments to the patient may be irreparable.—*Charlotte Med. Journal*, Oct. 1896.

### The Medical and Surgical Treatment of Appendicitis.

BY S. C. GORDON, M.D.

In announcing the title of my paper, I seem to hear the ringing of the chestnut bell, and, in an undertone, a chorus of "roasted chestnuts," so much has this subject been paraded in local, state, national and international societies and in medical journals throughout the world; and yet I venture to add another to the long list, for I find on much inquiry, that

the profession are still divided on what is the best method of managing this disease, which has excited so much attention within the past five or six years.

The profession has been ridiculed, caricatured and made the butt of innumerable jokes on what the penny-a-liner has considered a "fad," while all have been considered "cranks" for believing that the disease has even existed at all. Nevertheless, I am sure that every honest man in the profession knows very well that there has been a much larger percentage of these cases within the time named than existed before in the same number of years: while the laity are asking, if this be true, why is it?

I believe it to be true that the cases have largely increased in the past few years, and my reply to all such questions is, that it has increased *pari passu* with the other disease so prevalent during that period, viz.—la grippe, and in my opinion in consequence of it. In thirty years prior to five or six years ago, I feel sure the profession had not seen as many cases as since. This is my observation and I think the Fellows of this society will justify this, if they will recall their own experience. So far as I know, this theory is largely a personal one, but when we consider the myriad forms of disease that have followed this epidemic, we may logically infer that the intestines, that have suffered in so many ways, should show special infection at this point. So much by way of deviation from the subject matter of the paper—treatment.

Nearly all writers on the subject consider the treatment under a surgical head and teach that only by what they term "early" or "timely" operation can salvation to the patient come, and my friends from Massachusetts, and especially my friend Dr. Worcester of Waltham, goes so far as to say

“that every death resulting from appendicitis where the patient was not given the benefit of immediate surgical relief, is due to malpractice,” and “holds as responsible for the continued death roll, both those who advocate other methods of treatment and those who tacitly approve the propriety of delay in such cases.” He also says that “nobody ever did die of appendicitis or ever will,” meaning by that, if the appendix could be amputated at the very moment the attack began in the appendix, and before any of the surrounding peritoneum were involved, that operation would save the life of the patient. For the mere sake of argument, I am willing to admit that, if he can get any comfort from the admission. But how many of us general practitioners ever see a case in that stage of the disease? I am writing now for the men who see these cases many hours, and sometimes days, after the attack began, and in country districts and under circumstances where surgery is entirely out of the question, both on account of environment and lack of skill and experience in operation. What shall the average young man and average general practitioner do under these circumstances, is the subject matter of this paper. I believe as fully and as strongly as any one of these men that appendicitis is a surgical disease, but I do disagree as to the time that surgery should come in.

From a quite extensive experience covering a large number of cases, within the past eight or ten years, I am sure that “early and timely” *medical* treatment, has saved many more from immediate death, than has surgery as it has ordinarily been practiced.

I purpose, therefore, in this paper, simply to briefly sketch a number of cases that have come under my care and observation, illustrative of medi-

cal treatment during the acute stage, from which all recovered, many of whom were subsequently operated upon after convalescence, and others apparently are well without operation, and still others have declined operation, but have had one or more similar acute attacks. Assuming that all these cases are peritonitis, when they come under our care, it remains only to consider how we will treat them. I believe that the profession are agreed that in no case is this condition (peritonitis) absent. It is only a question of degree. In the catarrhal form, the inflammation may be confined to the appendix alone, externally, with adhesions from exudate, poured out around it, gluing it to the cæcum and parts lying in contact; or perforation may take place, allowing septic material to escape, producing peritonitis involving only the small space external to the cæcum and perhaps extending up behind the head of the colon. The case, left to itself may go on to the formation of pus, that may be absorbed gradually, or open into the general cavity, or colon, or find its way out externally. Or still another degree, where almost from the first a general peritonitis follows perforation, and left to itself soon terminates in death, attended with extensive gangrene of the intestines, omentum and parts involved. In fact, in all the cases where I have seen post-mortems, gangrene of some portion of the intestine has been present. This condition is in my opinion the chief point to guard against, and I believe that by prompt, free, active medical treatment we may do much to prevent it. Pus of itself is not deadly but often entirely harmless—at least for many weeks it will remain in the peritoneal cavity, and, when relieved by natural or artificial means, the patient rapidly recovers. In many instances quite large quantities will be gradually



removed by absorption, *i. e.*, the serous portions will become absorbed and the more solid portions undergo a caseous degeneration and become gradually removed. I have frequently operated between attacks of appendicitis and found this condition. I shall cite instances of all these varieties.

Given, then, a peritonitis, what shall be the treatment? In all other cases of peritonitis, *i. e.*, from all other causes, the professional world seems well agreed to follow the plan, so long advocated and practiced by Mr. Tait, of giving salines freely, with a view to relieve the over-distended blood vessels of the part affected, before complete stasis occurs and gangrene results. If this is done in the early stages and leeches are applied externally, the results, in my experience, have been invariably salutary.

Since 1886 I have followed this plan, in all cases of peritonitis without regard to cause, and have seen no reason to doubt its great value. I am sure it has proved far superior to the old opium method. I have never known it to fail in a case of appendicitis that I have had charge of from the first, and it has also been successful in no less than a dozen cases, where the disease had existed from three to seven days, under the old treatment by opium. In several of these latter cases I am sure that pus had formed, and in many of them I proved its existence by finding flakes of caseated pus, at an operation made after convalescence was established. In all of these cases I followed the saline plan so long as any elevation of temperature remained. I frequently combined with this, large doses of quinia, after the free catharsis induced by the salines. In no one case have I resorted to surgical means where I have had full control of the case myself, until full convalescence was well established, and not a fatal

case has occurred. Since commencing this plan, my personal experience covers at least twenty-five or thirty cases, while I am cognizant of many more treated on the same plan by physicians in different sections of New England, some of which I saw in consultation, while the physicians treating the cases have written me in reference to many others. In two cases there was general suppurative peritonitis, and the abdomen became filled with pus, the patient surviving this condition, in one case eight and the other fifteen weeks and finally recovered after operation. While the salines did not prevent or cause absorption of the pus, I am sure it saved the life in each case.

The following are types of the various forms and varieties of appendicitis alluded to, all treated medically during the acute attacks:

Miss —, age 15, in the northern part of New Hampshire, was taken with all the violent symptoms of appendicitis, vomiting, severe pain finally locating in the right iliac fossa. The pain was so severe that the attending physician gave opiates to the point of quieting it, temperature ranging from 101° to 103.8°. This continued for six days when I saw her in consultation and immediately advised salines, by mouth and enema. I feel very certain that pus had formed from the tumor and history.

A few hours were sufficient to obtain free catharsis, and fever abated, pain ceased and from that date a slow but sure convalescence followed. I advised operation as soon as she was well enough, but the friends were unwilling. A second attack came on before she was able to go out of doors, but a prompt repetition of the salines soon cleared up the symptoms. That was five years ago, and there has been no return to my knowledge.

Three years ago, I saw in consulta-



tion a young lady fourteen years of age. Like the former case, I was sent for to "operate for appendicitis." The patient had been very ill for a week, with high fever, well marked tumor and everything pointing to abscess, but deeply seated. The bowels had moved but once during the time. I at once began with the saline enema, followed by Seidlitz powders every hour. Within twelve hours we had a decided abatement of symptoms and she eventually regained her health,—no operation has yet been permitted.

Two other cases in the eastern part of the State, where I was sent for to "operate," were out of danger when I arrived: both, in my opinion, due to the treatment by physicians who believed and practiced the cathartic plan. The first case ended spontaneously by sudden flattening of the tumor, followed by a copious discharge of pus from the bowels. Dr. Varney, then of Union, Me., (now in Mass.) saw each of these cases and particularly in the last followed the saline method. Whether the pus, in the first case, came through the cæcum, by perforation, or was in the appendix at the junction, I am unable to say, but the facts are as stated. My impression, derived from the history of the case, is, that it was abscess around the appendix, rupturing into the cæcum. I am aware that occasionally we find a perforation through the cæcum in the neighborhood of the appendix in connection with a gangrenous appendicitis. I do not think it necessarily due to the presence of pus at that point, but to softening of the part as a result of the inflammatory process.

The two cases following show how tolerant the abdominal cavity becomes when gradually invaded by pus: Case first was that of a female child about eight years old. The symptoms at first resembled typhoid fever, but

with pain in the right iliac fossa, fever was nearly continuous, and within a few days a general peritonitis ensued, which the attending physician supposed due to a tubercular condition. I saw the case at the end of eight weeks from the commencement of the attack and found the abdomen filled with pus; abdominal section showed a gangrenous appendix with perforation, as the cause. I washed out with bichloride solution and the patient recovered entirely from the effects of the operation, but subsequently died from tubercular disease. I believe, had I packed and kept up drainage with gauze, that even this would have been prevented.

The second case was, in many respects, very like the first, particularly in its early history, although the special symptoms of appendicitis were so well marked, that the attending physician used salines freely, but the fever relapsed frequently and the abdomen became prominent, and very pointed at the umbilicus, finally opening there, discharging pus and fecal matter. This continued for five or six weeks, when I saw the case in consultation fifteen weeks from the onset of attack, made abdominal section and found the appendix entirely gone, with an opening into the cæcum as large as my little finger. There was a fistulous track from it to the umbilical opening. The pelvis and abdomen were filled with pus, which I washed and sponged out, and packed with gauze only. The case did well and is now well.

I believe with the physician in attendance that each of these cases were perforation of the appendix from the first, which at once developed a general peritonitis. I also believe the free use of salines relieved the intestines of many of the toxic elements, as well as unloading the in-

flamed blood vessels, thereby preventing gangrene.

Treated by opium, or by surgery in the "early stages," I believe they would have died. I do not mean to be understood that I would have waited so long before operation, as in these cases, but would have operated in the first *distinct remission*. I cite the cases to show that it is not absolutely necessary, in order to save life, that even cases of this character must be operated upon early, but that life can be saved by postponing operation, provided the medical treatment is such as to prevent gangrene.

In the fifty or sixty cases where I have operated, "in the interval of attacks," since June, '92, I have treated many of them through one or more (one for two) acute attacks. In five I felt sure there was pus, but circumscribed, and yet preferred to wait. In all five of these cases I found the most conclusive evidence of pus having existed, viz: pus itself, either fresh or in a caseous state. In six of these cases there was either perforation of the appendix, or total destruction of the latter in two cases. In one of the cases a perforation existed directly through the whole diameter of the appendix, with the edges completely cicatrized, which I have no doubt took place four months previous to last attack there were three other openings but rough and granular. In one case the appendix was filled with pus; in another it was filled with a colloid mass, distending it to the size of the middle finger of a large man. In three of the cases the opening into the cæcum was direct, the appendix being entirely gone in two and nearly so in the third, and the bowel being closed by suture.

In no one of these operations did I have any cause for anxiety (as indicated by symptoms), except in the

nineteenth, after the first day. The nineteenth died from hemorrhage. In no case did I drain except in the two cases where pus had filled the abdominal cavity. The others all healed primarily. In each case I was able to remove the diseased appendix, where any was left. In "early" operations this cannot always be done. Within the last two years I have had under my care two very severe cases, which have terminated safely by the saline plan. One a man thirty, the other a boy sixteen. The latter had a decided remission at the end of a week, for two days, then the temperature returned to 103.5°, a free use of salines promptly cleared up the symptoms and he is now entirely recovered. I have no doubt that pus formed in each of these cases. Of course many of them never have a second attack, but as there is always danger, I recommend the operation in the interval. A letter from Dr. S. B. Overlock of Stenben, is of interest in connection with the use of salines. I make the following extract: "Was called to Capt. D. P., Sept. 4, 1893. Master marine, aged 60. All the well marked symptoms of appendicitis. I tried to impress upon his mind the gravity of his situation, but he refused to believe there was anything serious about his case, he had "ten or twelve similar attacks," during the last ten years, had always taken a "big dose of salts" gone to bed and stayed there without moving round until soreness and lameness had all disappeared." In present instance he had been sick seven days and as he had no "salts" he took a dose of "Parson's Pills." The doctor very properly operated in this case and saved his patient. There was a well marked circumscribed abscess and the inflammatory process had practically ended. The appendix was sloughed off completely.

The doctor further adds that the intelligence and probity of the Captain renders it probable that his account of his previous attacks is reliable.

It is pretty generally accepted that a *very large* percentage of cases recover under ordinary medical treatment, sometimes very ordinary, as in the Captain's case. Fenger, in a very elaborate article, published in the *American Journal of Obstetrics*, for Aug., '93, claims that "the mortality in general of appendicitis is only about 5 per cent." He then quotes Pepper saying that "20 to 1 are cured permanently without operation." Ranvers collected from the reports of the Prussian army, 2000 cases with 96 per cent. of cures without operation, and from his four years service in the Charité in Berlin, 54 cases with 3 deaths. Vollert gives the statistics for 73-4 years in Nothnagels Clinic in Vienna, 65 cases, 3 deaths. Fenger adds, "The facts mentioned above seem to me to put an end to any absolute claim of surgery upon appendicitis." I would amend this by saying "during the acute stage." In this connection I would ask the following question:

Is it good surgery to advise an abdominal section in every case of a disease, which terminates favorably in 95 per cent. or even 90 per cent. under ordinary medical treatment?

Again, admitting, as we all do and must, that a certain number of cases are of the so-called "fulminating" character and will of necessity die, under medical or surgical treatment, we find that a portion of this 5 or 10 per cent. of deaths are inevitable.

With my experience and knowledge derived from reports of cases made by men who practice the saline plan, I believe that 90 per cent. of the remaining deaths can be prevented by a prompt and early use of salines, to

the extent of relieving the congested vessels, removing exudate and preventing gangrene and suppuration.

Furthermore, from my own experience and others' reports, I feel quite certain that operation "in the interval of attacks" will not have a mortality of more than one or two per cent. I think no advocate of "early operations" will claim as low a percentage of death as this. It must be admitted that the opium plan adds a large list to the fatal cases, by masking the symptoms and postponing the time, when the "early operator" would say was the "golden opportunity." Reports are full of cases where the "operator" was "called too late." Had these patients all been treated for *peritonitis*, *without regard to the cause*, by salines, instead of by opium, the "toxic" elements would have been eliminated and the inflammatory products removed before suppuration and gangrene took place. If the case had not terminated by resolution, the integrity of the tissues would have been maintained. From my experience and observation I believe that every case would be in better condition for operation, at any period, if the salines have been used early, while 95 per cent., will go safely through a first attack. If this be so, are we not justified in claiming that appendicitis, in the early stages, is a medical rather than a surgical disease. Will not more lives be saved by this plan, than by that which advises operation *in every case*, especially when we consider the delays and oftentimes impossibilities of obtaining surgical aid. Is it not better to teach this principle to young men rather than to leave them floundering in the mazes of doubt as regards the "best time" for "operating." A condition is present which



calls for relief. The septic element has done its work and even if a little more is added it cannot aggravate the trouble. A match may ignite a flame, which left to itself will destroy everything in its reach—another match cannot increase the flame materially. The wise engineer will rather seek to extinguish the flame he has than to capture the incendiary or prevent another match being applied to the same building. When the fire is extinguished remove the cause of any future calamities of like character.

Applying the simile to the case under consideration I would say, treat the condition that exists, and when danger is past and a large part of the debris is removed by absorption, apply surgery and excise the diseased appendix to prevent future attacks. I know of many cases where operations have been made during the acute attacks, where it was impossible to find the appendix, except by breaking up the abscess wall and opening areas of peritoneum, and setting up fresh peritonitis, therefore it is not taken away. There is very little difficulty in this direction "in the interval." Believing in these general principles, I would most cheerfully subscribe to the view that appendicitis is a surgical disease, after recovery from one well marked attack, but not in the early stages.

I have frequently had a condition like the following: After treating the case with salines for twenty-four hours or more the temperature subsides, the pain is relieved and everything is favorable, but in a few hours fever comes back and acute symptoms arise. In such a state of things I operate immediately and have invariably saved my patient. The integrity of the tissues had been saved by the salines and the parts soon recovered.

If I see a case in the early stages I never give opium, no matter how severe the pain, but soon relieve it by Seidlitz Powders or Epsom Salts in hot water. (saturated solution) or the stomach failing to retain it, give the saline enema—Epsom Salts and glycerine.

Richardson, than whom there is no better operator, reported a mortality of 44 in 181 cases treated by operation, others report many fatal cases. It is to be said of such a distinguished surgeon that he was undoubtedly called too late in many of them.

All of us have had similar experience, and in some of my own cases where I have operated as a last resort, I have almost invariably regretted doing so.

I have never seen any of the ill effects from salines, so much feared by Dr. Richardson and others, but always more or less relief.

I have found foreign bodies in the appendix but once, some small fruit seeds, frequently fecal concretions, but many times nothing but inflammatory products.

My conclusions are:

1st. That appendicitis is always to a greater or less degree peritonitis.

2nd. That it is much more frequent than formerly and due in my opinion to germus caused by the epidemic of Influenza that has so generally ravaged the world.

3rd. That salines have been successful in peritonitis from other causes, far beyond any other form of treatment, and in my own practice and that of many others in appendicitis, never doing harm.

4th. That a majority of cases must be in the hands of men who are not experts in surgery and must be treated medically, and modern experience and common sense dictate the cathartic rather than the



opium plan.

5th. That the opium method masks symptoms, checks elimination of toxic elements and causes stasis in the blood vessels, by paralyzing the vaso-nerves, thus favoring gangrene.

6th. That the saline plan promptly relieves pain, washes out the toxic elements, and *most important of all UNLOADS the distended vessels*, thus preventing gangrene and maintaining the integrity of the limiting membrane, formed by exudate, even in suppurating cases and saves life until surgical aid is required or can be obtained (in cases demanding immediate operation).

7th. That in cases of well-marked limited abscess, or general suppurative peritonitis, early operative procedure should be instituted, but in all cases such operation should be preceded by the saline treatment.

8th. That by following the above general principles 95 per cent. will go safely through the first attack and often several subsequent ones.

9th. That a large percentage of cases undoubtedly fully recover after one or more attacks, and no recurrence ever takes place.

10th. That inasmuch as there are no indications whereby we can determine the cases that will fully recover, after one attack, it is safer to advise the operation before a second one, especially as the organ is diseased to a greater or less degree.

11th. That the danger in delay is much greater after one has reached the age of 40. Although the liability to seizure is much less, owing to atrophy of the organ and closure of the opening into the caecum.

12th. That while surgery may save some lives in the very earliest stage of the disease, it is not practicable at that time, but should be adopted after sure recovery from the

first attack. — *Journal of Medicine and Science*, Dec., 1896.

### A Study in Appendicitis.

BY R. D. PRATT, M.D.

Of fifteen cases in separate individuals, twelve recovered without operation; three died, one without operation, two after. Sex displayed the usual proportion, only four being females; age ran from eleven to sixty years, the largest number being between twenty and forty; recurrences occurred in four.

*Case Eight:* Woman, age fifty years, had had pain in right iliac region for twenty years, acute symptoms of appendicitis for several days. Saw her with attending physician after free use of salines she passed an enterolith as large as a guinea egg. Relief complete and persistent, three years having elapsed since the attack. In this case the concretion was evidently very slow in forming, and very favorably situated.

*Case Nine:* Young lady, age seventeen; had been sick several days under the charge of another physician. Shortly before our visit had had sharp pains in right side, considerable shock, and the passage in an hour or two afterward of eight ounces (estimated) of pus from the bowels; recovered in a few days; this being one of those fortunate cases in which spontaneous drainage takes place into the bowels.

*Case Twelve:* Man, age sixty, white, small farmer; had been sick for four days when I first saw him; typical symptoms of appendicitis with acute nephritis. I was hurriedly summoned six hours after first visit, found him with symptoms of developing peritonitis, in collapse, owing to the kidney complication. (He was eliminating only three ounces of urine in twenty-four hours.) Operation was deemed inadvisable, and a very gloomy

prognosis given. For the next four weeks he ran the ordinary course of peritonitis, finally recovering. Although eighteen months have elapsed he has had no further trouble.

The other cases that recovered presented all the cardinal points in the symptomatology of appendicitis, but ran the usual course, getting well after a few days' treatment.

*Case Fourteen:* Young, robust man, age twenty, had been sick one day under the care of another physician, only slightly ailing, with abdominal pains as if from colic, and a little fever in the evening. Saw him early the next morning: peritonitis had already developed to such an extent that operation would have done no good. He died next day, sixty hours from the onset of the disease. Autopsy revealed extensive septic peritonitis: pus everywhere: two small enteroliths in the appendix, suppuration, with a small perforation about large enough to pass a probe.

*Case Fifteen:* A young man, age twenty-three, had been sick fourteen hours when I first saw him: pronounced symptoms of appendicitis. As he did not improve under treatment in the next twelve hours, I advised operative interference, which was done that night, thirty hours from the beginning of the trouble. The abscess was easily opened, cleaned, and drained. He rallied well from the operation, but died two days later from intestinal paresis, possibly due to sepsis. The gauze drainage, removed immediately after death, was perfectly sweet. The cause in this case was three small enteroliths in the appendix. No autopsy was permitted.

*Case Thirteen* I have reserved for the last for the purpose of more fully entering into it, as in some of its features it is very unusual, and, as far as I can find from a close search of literature, unreported.

Mr. B., age thirty-four, traveling salesman. Saw him June 15, 1895, about 4 A. M. Complained the preceding day of colic, for which he had taken morphine, with relief until 2 A. M., then he had a hard chill. Had for several years been subject to frequent attacks of this same colic, occasionally requiring morphine, but usually obtained relief by drinking hot water and taking enemata. At my first visit he presented the usual symptoms of appendicitis, the point of greatest tenderness, however, being one inch above the middle of Poupart's ligament instead of McBurney's point.

The second day of his sickness he had three chills, quite severe. I advised operation, but it was violently opposed by his family, and consent was finally absolutely refused. From that time until his death, on the eighteenth day, he had thirty-eight chills, he having had as many as seven in thirty hours, thirty-six hours being the longest interval between them. These chills were very severe, lasting from five to thirty-five minutes, and coming on without any premonition whatever. His temperature was very variable, being once, for a short while, 97°, most of the time normal, or 99.5°, except at the end of a chill, when it would run up as high as 103.5° to 107.5°; a sponge bath or ice would reduce it in the course of an hour three to six degrees. Jaundice set in on the fourth day. After the third day, had I not seen him earlier, I would have thought there was no trouble in the appendix whatever. No pain, no tenderness, no swelling, no rigidity of the muscles for two weeks to point to the original trouble as persisting or being the cause of his illness: so that two of my friends, men of great experience, who saw him with me, believed that the trouble was not then

in the appendix, but that it was possibly a developing abscess of the liver, or an obscure form of remitting fever. The profuse sweating of pyæmia was absent.

To be perfectly candid, during these two weeks of time we were completely at sea, and as consent was absolutely refused to even an exploratory incision, no means offered to make a positive diagnosis. On the seventeenth day he had sudden, sharp, severe pain in the right side, coming on immediately after a vomiting spell rapid formation of a tumor, exquisite tenderness, and prostration, apparently a recurrence of the original trouble. Consent was then given to an operation, which was done twelve hours later. Incision brought away considerable pus and about an ounce of *blood clots*. He rallied very well from the operation, but died a few hours later from exhaustion. The autopsy revealed a large abscess, extending retroperitoneally from the iliac fossa to the liver, gangrenous appendix, the distal end sloughed off congested sixteen inches of the lower portion of ileum, rupture in the posterior wall of the ileum one and a half inches from the ileo-cecal valve, one and a half inches in diameter plugged with a large blood clot drainage being from the bowels into the abscess instead of *vice versa*, there being probably one and a half ounces of blood clots and some feces in the abscess; the ileum was clean, there was congestion and secondary pyemic abscesses in the liver; the other abdominal organs were healthy. The cause of this case proves to be gangrene of the appendix, resulting from a twist in that organ, occasioned by some unusual exercise, viz., horseback riding on a very rough-gaited horse.

It is almost an insult to a physician's intelligence to mention the question

of the diagnosis of appendicitis. During the past six years there has been so much study of the diseases of the appendix by competent men in all parts of the world that very little more is left to be learned in regard to its symptomatology, etiology, or pathology. The vital question now is: How shall it be treated? Are all cases surgical? What form of treatment is the best in the non-surgical cases?

I don't believe all cases are surgical. Some of our most distinguished surgeons claim that every case should be turned over to a competent surgeon as soon as recognized. This may be good practice for such centers of population as Chicago, New York, or Louisville, but hardly feasible in Shelbyville or Lebanon. In the cities where the benefits of learned counsel and the assistance of skilled surgeons can be had at a moment's notice, where there are various institutions equipped with all modern sanitary arrangements, and trained nurses, the question is simple compared with what it is to those of us practicing in the country, where probably our patient is four or five miles distant from our office, surroundings wholly unfavorable, nursing only what can be given by farm hands, or the woman of the house, whose time is divided between the sick-room and the kitchen. I hold that while in cases of dire extremity, where an hour's time may mean life or death, every physician should have the courage to take even the most desperate chances to save life; yet when time will permit, no one should go into the abdominal cavity who has not had special training.

Look at the statistics of appendicitis. Three years ago Dr. William White, in a lecture at Philadelphia, made the statement that about eighty per cent of cases of appendici-

tis get well without operation. In a recent article in the *Medical Record* Dr. Wyeth made a statement that probably fifteen per cent might recover under conservative management. Here we have it: two men of equal prominence give almost diametrically opposite results from statistics. While my few cases bear out Dr. White's proportion, still they are so few as to count for almost nothing. I don't believe in taking an ultra-radical view, nor on the other hand in ultra conservatism, as Dr. McCartney, who with twenty-four consecutive recoveries under opium, thinks extremely few cases are surgical. This apparent inconsistency may be explained by the fact that surgeons see only the very worst class of cases, and rarely those mild ones that go on to recovery without operative interference. To a conscientious practitioner, whether to operate or not to operate is a most perplexing question, and one fraught with the greatest gravity and responsibility.

Here are two cases: One an old woman, who after suffering for twenty years is relieved by a timely dose of salts. The other a robust young man, the picture of health, succumbs in sixty hours. Again, an old man with the most dangerous complications gets well after a month's sickness; a young man, under the best conditions for surgical aid, dies in four days.

Third, a young lady who properly was an operative case is relieved by spontaneous rupture and drainage through the bowels. On the other hand a young man, with also an abscess, after a tremendous struggle for three weeks, dies because the knife was not used early enough. Each case is a law unto itself, and only after a close study of its minutiae can we arrive at the conclusion as to what is best

to be done in that particular case. As a rule, I think these are surgical cases: First that class in which there is a rapid destruction of the appendix, and a quickly developing septic or purulent peritonitis, the fulminating cases of certain writers. These cases are the most treacherous, as the initial symptoms may be very trivial.

Second, those with moderately severe onset, in which the symptoms do not yield in a few hours to treatment, or are gradually getting worse, indicating a developing peritonitis or sepsis.

Third, in cases with initial symptoms which rapidly disappear, if there persists a condition simulating a pyemia or septicemia.

Fourth, in the recurrent cases, where the attacks are getting more and more frequent, so as to make life miserable, or so severe as to put the patient's life in jeopardy.

As regards surgery, or surgical technique, it is neither my province nor desire to speak. In the treatment of non-surgical cases we have very few medicines to select from. Absolute rest in bed, starvation diet, ice or heat locally, as best can be borne, opium and salines form our list.

As to the relative value of opium and saline treatment, as a rule only sufficient opium should be given to make the pain bearable. The cases in which Alonzo Clark doses of opium are indicated are few and far between. Besides masking the symptoms, and often thereby missing the most favorable time for operative interference, it locks up all secretions, deranges the stomach, and, stopping peristalsis, prevents all hope of drainage through the natural channel. The salines, on the contrary, by washing out the intestinal track, renders it in as nearly an aseptic condition as we can possi-



bly hope to obtain. If the valve of Gerlach should still be patulous, it by a *vis a fronte* favors drainage into the colon. In addition, by depleting the portal circulation, it tends to prevent development of peritonitis.

There is one point on which we have to be guarded, however, in the use of salines, since, if suppuration has already taken place, the increased peristalsis may cause a rupture of the abscess into the abdominal cavity. My plan has been a combined one, barely enough opium to make the pain endurable, and salines in sufficient doses to thoroughly empty the bowels and keep up a mild diarrhea.

I have attempted nothing new or startling in this paper, but as truth can only be arrived at by a faithful report of cases—failures as well as successes—this is my apology for presenting a somewhat trite subject for discussion.—(*American Practitioner and News*, Nov. 14, 1896.)

### Surgical Injuries to the Ureters.

BY J. M. BALDY, M. D.

Injuries to the ureters are by no means uncommon accidents, even though few of them ever find their way into print. The question of the repair of a severed ureter within certain accepted limits was a few years ago unsolved, while to-day we stand upon substantial surgical grounds in saying that the subject is settled beyond peradventure. It is true there yet remain some few details in the technique to clear up, but the main proposition is accomplished. The adoption of such makeshifts as ligation of the severed ends, formation of a urinary fistula or nephrectomy is ancient history. To-day we have but two propositions to consider—uretero-ureteral anastomosis and uretero-

cystostomy (bladder implantation). Both these procedures have been demonstrated as feasible, first by experimentation (Van Hook, Raoli and Buraehi) upon dogs and subsequently by various surgeons upon the human subject. There are now upon record seven successful operations of this character and it is not too early, I think, to make a comparison between the two methods for the purpose of determining which is the better, or in what class of cases each is applicable. It has been contended by some surgeons that these two procedures are not rivals in the same field, but are applicable to distinctly different classes of cases. In this matter, however, I am compelled to dissent, and the facts as well as theories seem to uphold my position. Experience seems to demonstrate more and more that bladder implantation is applicable to a much larger group than is uretero-ureteral anastomosis, and if any choice must be made between the two methods this is the method of election. In this connection several points present themselves for consideration, a careful study of which will materially aid us in arriving at an intelligent conclusion.

It is necessary for the purpose of performing uretero-ureteral anastomosis:

1. That the two ends of the ureter be perfectly free and easily brought together.

2. That the bladder end be more patulous (or capable of being made so) than the kidney end.

3. That the injury to the ureter be sufficiently high in the pelvis to enable the surgeon to readily carry out the necessary manipulations.

In the case of uretero-cystostomy but one point is necessary:

1. That the injury be not too high in the pelvis to enable the kidney end of the ureter to be ap-

proximated with the bladder.

Theory is a very good method by which to arrive at a conclusion if facts be wanting, but where facts are at hand theory is no longer of consequence. Applying this axiom to the matter under consideration it will be recalled that seven operations are on record for the repair of severed ureters. Of this number two (Kelly and Bache Emmett) were of the method uretero-ureteral anastomosis: five (Novaro, Kelly, Krug, Penrose and Baldy) were by the method of uretero-cystostomy. A careful study of this group of operations discloses several important facts: five of the seven procedures were bladder implantations and in no one of the five could the end to end anastomosis have been accomplished. Of the two cases of end to end anastomosis one at least (Kelly) could have been corrected with equal success by bladder implantation. In the second case (Bache Emmett) the tear was at an unusually high level, the case in fact almost unique in this respect. Even in this case it is not stated in the report that the bladder and ureter could not be approximated. It is therefore, evident, as far as practical experience demonstrates anything, that uretero-cystostomy can be performed in almost all these accidents.

Analyzing the five cases of uretero-cystostomies it at once becomes evident, as has been pointed out, that in not a single one of them was uretero-ureteral anastomosis possible. The operation in the cases of Novaro and Kelly were performed some weeks after the original injury and at a time when the bladder end of the ureter was irretrievably lost. In the Penrose case the bladder end was cancerous, and in both Krug's and my own case the lower end was lost in masses of inflammatory deposits:

in addition the kidney end in Krug's case showed such thickening and friability from inflammatory changes that a uretero-ureteral anastomosis would have been impossible as dilatation of the bladder end could not have been made even if it could have been found. Emmett's statement then that "it (uretero-ureteral anastomosis) is certainly feasible in every case in which there is no loss in continuity, and probably in those even in which quite a portion of ureter might be lost" is clearly theoretical and has no basis in fact.

The facts established are therefore that in the great majority of cases uretero-cystostomy is possible. In but a small portion of the cases can uretero-ureteral anastomosis be successfully performed: even where this operation is feasible in the great majority of cases uretero-cystostomy is equally practicable. If this be true, and as far as the facts are to be relied upon it is unquestionable, uretero-cystostomy is generally the operation of necessity. As to the operation of election where the possibility of both methods present the facts are not so decisive. However the indications as far as they go seem to favor uretero-cystostomy. The points which have been considered in this connection are:

1. The ease with which each operation may be performed in any given case.
2. The danger of immediate obstruction.
3. The danger of future obstruction.
4. The danger of kidney infection.

As to the first point. Any injury to the ureter at the base of the broad ligament or thereabouts forces the surgeon in case he desires to perform a uretero-ureteral anastomosis to work so low in the depths of the

pelvis as to render the necessary manipulations very difficult if not impossible; on the other hand, if the injury be at or above the level of the ileo-pectoneal line it is exceedingly difficult if not impossible to closely approximate the end of the ureter and the bladder. Therefore, within these limitations it is manifest that there can be no manner of rivalry between these two methods; it matters not what objection may obtain in either case, we are forced to adopt that which is feasible. As a matter of fact, however, in the vast majority of cases the injury occurs between these two points and at a position which allows of the approximation of the desired points with more or less ease. In the case of most neoplasms (intra-ligamentary cysts and uterine fibroids) where the ureter is severed at a very considerable distance from the bladder it will be found that it is greatly elongated, sufficiently so to compensate for the high level of the injury and to render it easily brought in contact with the bladder. This is oftener true within these limits than that the bladder end is found, or if found is in a condition to be used. Of the seven cases reported uretero-cystostomy was performed or was feasible in six, and it is not recorded that it was not so in the seventh. Therefore, even if the statement that "it (uretero-cystostomy) can only be applied to those cases in which the injury is very close to the bladder" were true, practical facts demonstrate that as a rule these injuries occur at a point at which this operation is readily performed. Even though there be some little difficulty in easily approximating the ureter and bladder such difficulty may be readily overcome, as was done in Kelly's case by dissecting the bladder to a greater or less extent free from

its attachments to the pubis, or by fastening the bladder to some fixed point on the pelvic wall by several stout sutures, as was resorted to in my own case. In neither of these cases was there any subsequent trouble either in the bladder, ureter or kidney, and any criticism from that point of view is based purely on theory. The danger of immediate obstruction in two operations does not seem to be great. In no one of the seven cases reported has this effect been noted and it would seem that this complication does not form a very great element of danger.

Secondary obstruction would, however, appear as a possible defect, although as far as noted no such condition has occurred. In view of this possibility the criticism has been offered in the case of uretero-cystostomy that "the ureter is placed directly through the walls of the bladder instead of slantingly as it is in nature. This natural entrance is peculiarly well fitted to guard against a constriction of the canal; the opening through the viscus is oblong, the contraction of the muscular fibres of the bladder is spread over an oval length of the ureter and closure of its lumen is thus made impossible." The objection is again altogether theoretical. The arrangement and action of the muscular fibres is quite different than as stated, and I think none of the gentlemen who have performed uretero-cystostomy will for a moment concede that the ureter passes naturally more obliquely through the bladder wall than it is made to do so by the operation. The practical test again settles the matter finally. I have personally had opportunity to examine two of these cases repeatedly with the cystoscope since their operations, one of which was performed about two years ago, and there is as yet no sign of

stenosis, nor does the flow of urine from the ureteral opening in any way differ from that of the non-injured side. In fact it would be well nigh impossible to tell which side had been injured except for the abnormal position of the opening on the side on which the operation had been performed. The simple precaution of splitting one side of the end of the ureter, which is implanted into the bladder, adds greatly to the certainty of non-stenosis. On the other hand, it stands to reason that there is no little danger of obstruction in an organ of such small calibre where the opening in one end is (necessarily) narrowed by its forcible introduction into the other. Should by any possibility stenosis follow either operation, is there any one who doubts the greater ease with which it could be detected and treated in the case of uretero-cystostomy?

The dangers of kidney infection have been urged against uretero-cystostomy, but the arguments are too fallacious to stand for one moment the test of the facts. The statement is made that "the natural opening of the ureter into the bladder is valve-like, which is only patent when the ureter contracts upon its contents to force them into the bladder. Under new conditions it is at times constricted by the muscular fibres; it is at other times gaping. How can it then stand as a guard to the kidney? It must allow a back pressure when the bladder is full, and more positively still when this viscus contracts to empty itself." There are three propositions ad-

vanced in this statement and all three are incorrect. In the first place is the natural opening of the ureter valve-like? I conceive not, unless we are to consider that the ureter being more or less collapsed throughout its whole length acts in this way as a valve. In this case the same thing holds true on the injured side. Again I have never heard any one who had the privilege of seeing through a cystoscope the seat of the operation say that the opening was gaping. I have myself seen three of these cases and in none of them did this occur. Finally, the position of the new opening, high up on the fundus of the bladder, eminently protects it from the chances of septic invasion and particularly from the back pressure caused by the contraction of the bladder on its contents. Finally in not a single one of the five operations has kidney infection resulted.

To sum up then, it is clearly evident that in the large majority of cases of torn ureter, during the course of the operation the injury will occur below the level of the ileo-pectineal line, in which case it is amenable to treatment by uretero-cystostomy.

The danger of stenosis in uretero-cystostomy does not obtain.

The dangers of kidney infection are mythical.

All things considered, where the question of choice between the two operations arises as if there be any difference it lies in favor of uretero-cystostomy. — (*American Journal of Surgery and Gynecology*, Oct., 1896)

#### SOCIETY NOTICE.

The Annual Meeting of the Northern Tri-State Medical Association, which includes, Indiana, Michigan and Ohio, was held at Fort Wayne, Ind. on Jan. 19, 1897. Among the many interesting papers read were: "Ectopic Gestation with retained Foetus, etc." by Dr. L. H. Dunning, Indianapolis, Ind.; "Posterior Deviations of the Uterus" by Dr. J. H. Carsten, Detroit, Mich.; and "Bacteriology of the Vaginal Secretions" by Dr. C. N. Smith, of Toledo, Ohio



## CORRESPONDENCE.

TO THE EDITOR OF THE ANNALS OF  
GYNÆCOLOGY AND PÆDIATRY.

DEAR SIR — Please quote or make  
editorial comment on the following:

TO THE MEMBERS OF THE MEDICAL  
PROFESSION.

I would be pleased to have an expression from you, either personally or through some medical journal, as to the relations of the lay-publishing firms of medical journals and the profession. The request is suggested by the fact that Messrs. Wm. Wood and Co., of New York, refuse to permit the editors of "The American Year-Book of Medicine and Surgery" to use in our abstracts of Medical Progress articles and illustrations first printed in the "Medical Record" and the "American Journal of Obstetrics."

This decision seems to me to be wrong, for the following reasons:—

1. IT PREVENTS THE DISSEMINATION OF MEDICAL KNOWLEDGE. The Year-Book condenses, systematizes, and criticises the year's medical work in a shorter space and more permanent manner than the journals, and has thousands of readers no single journal can claim, or hope to reach. Every physician writes and publishes articles in order that every member of the profession may, if possible, learn of his work, and that science and progress may thus be furthered and humanity benefited. To interfere with such dissemination of

our literature in reputable publications is, I think, discourteous and unjust to the profession and an injury to medical science.

2. This injustice and injury to medicine become all the more striking when physicians do not receive a cent of pay for contributions from the publication of which the lay-publisher is supposed to make considerable financial profit.

3. No other publishers in the world, not even those who pay authors for their contributions, have in the least objected to our reproduction of quotations, abstracts, and illustrations from their journals.

Do you wish to limit the dissemination of your contributions to medical science by such an exclusion of them on the part of publishers from reputable publications? IS THIS LITERATURE THE PROPERTY OF YOURSELF AND THE PROFESSION OR NOT? Does your gift of it to a journal make it the private property of the publishers of that journal? Is it not rather a loan for temporary use only?

Will you not hereafter demand that there be printed with your article a statement that the right of abstracting the text or reproducing illustrations is guaranteed?

Sincerely yours, GEO. M. GOULD.

119 S. 17th Street,

PHILADELPHIA, PA.

Dec., 1896.

## EDITORIAL.

The foregoing letter from the accomplished and strenuous editor of the *Medical News* raises some very nice points of professional ethics and editorial comity. As it seemed to us a very delicate matter to express an opinion in such a matter on an ex-parte statement, and as the ground alleged to have been taken by the publishers of the *Medical Record* and the *Am. Journal of Obstetrics* differs entirely from the attitude of liberality and courtesy with which we have always been treated in the matter of making abstracts of articles first published in these journals, we wrote to both Dr. Gould and Dr. Wells to inquire whether the refusal of Wm. Wood and Co., to allow Dr. Gould to use abstracts, or copy illustrations from their Journals was a general policy, applicable to the whole profession, or whether it was a personal matter, the result of differences of opinion or other real causes of friction which had ripened into hostility.

The replies quoted below show that there is a difference of opinion even on this point.

119 South Seventeenth Street,

Philadelphia.

January 5th, 1897.

DEAR DR. CUSHING—

Thank you for your kind letter of Jan. 3rd. From very many letters received from all parts of the country, I am sure that this is not a single or personal matter but it is the general policy of the Woods. If you will notice the preface of Sajous in the

Annual you will see that he has had the same trouble with this firm, although, I believe he has not mentioned the name.

I suppose you saw the excellent editorial of Dr. Foster, one or two days ago, which seems to me to express a wise and large minded principle. Even if it were not a matter of good policy and broad minded selfishness, it strikes me that as physicians, we should resent any attempt on the part of lay publishers to limit the dissemination of medical knowledge, especially of those cases where articles are furnished these publishers gratis.

With kindest regards.

I am sincerely yours,

GEO. M. GOULD.

71 West 45th Street,

New York.

DEAR DR. CUSHING—

You or any other Editor are certainly welcome to abstract or reprint what you please from the Journal just as you have in the past. Dr. Gould's matter is entirely a personal one between himself and Messrs Wood largely brought about by his autocratic and offensive way of asking for what should be looked upon as favors. I have seen some of the correspondence and from my standpoint cannot blame the Woods for their decision.

As in the past, either the Woods or myself will always be glad to extend any possible favor to the *Annals* or to its Editor.

Thanking you for the courtesy of your note and with kindest regards,

I am

Yours very truly

BROOKS H. WELLS.

Jan. 5th, 1897.

NEW YORK,

January 16th, 1897.

E. W. CUSHING, M.D.

168 Newbury Street.

Boston, Mass.

DEAR SIR:—

In reply to yours of the 3rd inst., in relation to Dr. Gould's circular letter, we beg to say that the matter is entirely a personal one, in which the profession have no possible interest.

We are in the habit of copy-righting all articles in the *Medical Record* and the *American Journal of Obstetrics*, mainly to protect contributors from the unauthorized use of their articles by unscrupulous persons, a matter which has given both us and them trouble in the past; and, as you rightly say, we have never objected to the freest abstracting from our columns by other Journals, or of any use which the authors themselves might subsequently wish to make of their work. Nor can we anticipate a contingency which might cause us to change our methods.

Dr. Gould and his publisher are feeling sore because we have positively forbidden their use of anything published by us in the works compiled by themselves. As you have probably noticed, he is in the habit of freely using any material he may find anywhere, in the preparation of the books which Mr. Saunders engages him to produce, without any remuneration to the authors, and frequently without the slightest acknowledgement of the benefits which he receives from them. We have considered this unfair and unjust, and have told them that it must be stopped. We have never met Dr. Gould, but, judging from the letters he has written us, he must be a very peculiar man.

Sincerely yours,

WM. WOOD & CO.

As far as this journal is concerned, therefore, it appears that there has been no change of position toward us on the part of the Publishers or editors of our esteemed contemporaries, and it is rather questionable whether we have any business to express an opinion on a matter which does not concern us directly.

Following, however, the custom, which has become chronic in the medical profession, of trying to regulate other people's affairs, for the supposed advantage of the profession as a whole, we take the liberty of submitting a few observations.

In the first place, as a matter of legal right, there is no question but what the publishers of a copy-righted periodical have the right to forbid the reproduction of any articles or illustrations therein printed. Whoever sends an article to such a journal must be supposed to know this fact, and whoever wants to reproduce such articles or illustrations must say "if you please."

It is easy to see that it would be impossible to find the capital to publish journals, and especially to illustrate them, without some protection of this kind. Although medical authors do not as a rule receive any payment in money, yet they expect and receive reprints, which are the same as money to the publisher. Although this makes merely a nominal remuneration, yet there are incidental advantages in publishing an article in a journal of established reputation, which are often of more importance to the author than a few

dollars more in money.

Regular reports of societies are often obtained only under a contract requiring bound volumes of transactions, or reprints, or both, representing in the aggregate \$500 to \$700 or more yearly. Illustrations are often expensive, and it may be that they are made with the expectation of using them afterwards in some text-book. It is therefore hard to see how the business of publishing a medical journal could be carried on without copyright.

Secondly, as a matter of fact, an Annual or Yearbook, or any such publication, if carried on on a large scale and ably edited, stands more or less in a position of offering detriment to the regular periodicals. This need not be so, perhaps, but the *modus operandi* is about as follows. The earnest and well-read physician is a subscriber to perhaps two weekly and three monthly journals, representing one of the great metropolitan weeklies, a weekly journal of his own state, and three or four monthly or quarterly periodicals on special subjects. In cometh a glib and persuasive individual who proceeds to hypnotize the doctor as far as he can, and then suggests to him that he is in error to subscribe to all these journals; that by taking the celebrated and inestimable yearly publication, which is herewith offered, the busy practitioner has all the best that is published and escapes all the rubbish, all the false and crude, with which the weekly and monthly periodicals are filled, all the dreary twaddle

of medical societies with which such publications are overloaded, etc., etc. This and very much more having been said the busy practitioner falls a victim to the peripatetic persuader, subscribes to the yearly compilation of predigested medical nourishment, writes five postals beginning "please discontinue" and perhaps forgets to send in his arrears of subscriptions. This is no fancy sketch. It has been tried on us and although we are immune, yet various of our friends have succumbed.

Now, as our opinion has been asked, we have to say that the editor of a yearly publication who, in blissful ignorance of the way the "business end" of medical journalism is conducted, calmly proceeds to pick out the best articles and illustrations from all the copyrighted journals, is bound to "say please."

Thirdly, as to the interests of the profession at large and the diffusion of medical knowledge, it is clear that any general policy of refusing the right of abstracting articles on medical matters would seriously interfere with the system by which valuable improvements in our art are at once reported and introduced all over the world. Such a policy would require an entire remodelling of all methods of medical journalism, would reduce the number of journals to a few which might form a sort of syndicate or trust and would never be tolerated by the profession. Such a policy would certainly react injuriously on any publishers who attempted to introduce it, and no one knows this



better than Wm. Wood and Co. This firm, however, distinctly and emphatically repudiates this policy and denies any intention of hindering the "dissemination of knowledge." The attempt of Dr. Gould to prejudice the profession against Wood & Co. by his circular can only be considered as entirely fair if he has correspondence to show that his adversaries are acting under a general policy of refusal to permit abstracts, and that his trouble with them is not individual. The burden of proof in this respect seems to be on him.

Lastly, as to the interests of the authors of articles, it is to be assumed that the main motive in preparing an article is that the author thinks that he has something to say that will interest and instruct the profession, and thereby aid the progress of our art and improve the condition of humanity. As a secondary consideration, a sort of "incidental protection" come the increase of the author's professional reputation, and finally, of his practice; the proper ambition to be well known and well thought of by his confrères; even the reasonable gratification of his self esteem by seeing his name in print, quoted as an authority. All of these motives are obviously favored by a system of free abstracting, both in contemporary periodicals and in annual digests. Although Wood and Co. only refuse permission to make abstracts to Dr. Gould, yet it is a fact that in so doing they render their periodicals somewhat less valuable as

media of publication, and to a certain extent abridge the customary privileges of the authors of their articles, and interfere with the traditional customs of medical journalism.

Their reasons for so doing are succinctly stated in the communication published above. It will soon be seen whether medical writers will decline to send articles to the *Medical Record* and *The Am. Journal of Obstetrics*, or whether the course adopted will arouse a sufficient amount of odium to injure the subscription lists of these Journals. It is to be inferred that they have not taken this course toward Dr. Gould without what they consider a great provocation, and as the whole matter is one of correspondence they will be perfectly justified in publishing the letters, so that the profession may judge whether the provocation received is sufficient, in conjunction with the reasons mentioned above, to justify the somewhat summary and rather arbitrary course which they have adopted.

Finally we would suggest to both parties that a continuation of the contest will help neither and will injure both of them, and moreover it is not a pleasant episode in the history of American medical journalism. Would it not be better if, through mutual friends, they could get together and arbitrate their differences? Fighting seldom pays in the long run, and it is better to remember the old injunction "Agree with thine adversary quickly while thou art in the way with him."

## BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to DR. C. G. CUMSTON, 871 Beacon St., Boston.)

A TEXT BOOK FOR TRAINING SCHOOLS FOR NURSES INCLUDING PHYSIOLOGY AND HYGIENE AND THE PRINCIPLES AND PRACTICE OF NURSING. By P. M. WISE, M.D., Medical Superintendent St. Lawrence State Hospital; Editor of the State Hospitals Bulletin; Professor of Psychiatry, University of Vermont; Member of the American Medico-Psychological Association, etc. In two volumes. G. P. Putnam's Sons, New York, 1896. Price \$1.25 per volume.

These two volumes of 250 pages each, contains in clear concise form \* all the information needed to train a nurse. Non-essentials are omitted and essentials are carefully emphasized. There is a good thorough basis of anatomy, physiology and the laws of hygiene in the first volume. The second volume presents the proper course to take under direction of the physician in the care of surgical and medical cases and the method of care of the insane, of children, of obstetric and gynæcological cases. The illustrations are abundant and have just the right amount of detail for the ready understanding of the ideas illustrated.

LEE'S LAW AND BUSINESS INSTRUCTOR. LAIRD AND LEE, Chicago, 1896.

Penmanship, bookkeeping, banking and every-day law are among the elements which help to make up a

volume useful for reference at any busy man's elbow. Physicians are notoriously careless in their business relations and will profit in reputation as well as pocket by a careful study of these business laws and methods.

THE METHOD OF DARWIN. A STUDY IN SCIENTIFIC METHOD. By FRANK CRAMER. A. C. McClurg and Company, Chicago, 1896.

Every physician is a scientist and as such recognizes the genius of Darwin as a great leader of scientific thought. Classification, deduction and induction each takes a prominent place in all medical study. In no way can a man better fit himself for permanent and satisfactory work as a scientist than by study of just such facts and methods as are included in this book. Mistakes we all make, but they will be fewer and less important if our powers of observation and reasoning are trained in the right manner.

HYPNOTISM UP-TO-DATE. By SYDNEY FLOWER. Charles H. Kerr and Company, Chicago, 1896.

This little book presents in conversational style the ideas of Herbert A. Parkyn, M. D. and is an effort to rescue hypnotism from the charlatan and show it to be a practical help toward solving many problems, medical as well as others.

ON CHOREA OR ST. VITUS'S DANCE IN CHILDREN. By OCTAVIUS STURGES, M. D., F. R. C. P., Senior

Physician to the Hospital for Sick Children and to the Westminster Hospital. Second edition. John Bale & Sons, London.

The purpose of the author seems to be to show that chorea is chiefly a functional disease and that the causes may be avoided. Children are indeed naturally open to the disease but by proper management and training, attacks may be prevented or cured. The relations of Chorea with endocarditis and rheumatism are treated in somewhat of detail and the theories evolved are based upon an abundant quotation of evidence and observations. Treatment by drugs except in symptomatic cases is not recommended. Care in hygiene, diet and exercise is deemed of far more importance.

THE EDUCATION OF THE CENTRAL NERVOUS SYSTEM. A STUDY OF FOUNDATIONS, ESPECIALLY OF SENSORY AND MOTOR TRAINING. BY RUTHERFORD HALLOCK, M.A. The Macmillan Company, New York, 1896. Price \$1.00.

This book is written for the purpose of emphasizing the need and showing the best methods and sequence of training children in habits of thought, speech and action which shall later in life be the foundations of a healthy development of all the powers. We are all conscious that we are undeveloped in certain directions. The author suggests the lines in which from the very beginning the child should be led. As a concrete example, chief among many others mentioned, is the chapter on "How Shakespeare's senses were trained."

T. MORSE, JR. In two volumes Houghton, Mifflin & Company, Boston and New York, 1896. Price \$2.00 per volume.

Few indeed are the men who have been and are as well known as Dr. Holmes. As friend, physician, teacher and author, he is everywhere honored and beloved. His practice was never very large and his intimate friends were few, but hundreds of medical students came under his kind and scholarly instruction and thousands of readers have been helped by his genial and altogether delightful writings. It is, therefore, with great pleasure that we commend to our readers this "life and letters." The publishers part is admirable. Uniform in size and style with their edition of his works, well bound, printed on excellent paper, illustrated by eighteen choice engravings, it is an example of the best of the printer's skill.

Mr. Morse too has been most successful in his work. He is well known as the author of the biographies of Adams, Franklin, Jefferson, Lincoln and others in the famous series of American statesmen. His style is ever pleasing and attractive. The material, gathered with great care and painstaking search of authorities, is logically arranged so as never to become monotonous or tiresome. Childhood, student life, travels, medical practice, professorship, and literary life are all well described. Woven in with rare skill are numerous letters of Dr. Holmes which reveal with peculiar authority the deepest life of the great man. A full and well arranged index completes the work. Medical men will desire the work, not because of any additional items of medical knowledge it contains, but because of the revelation which it gives, of broad, kind and helpful manhood and charming per-

LIFE AND LETTERS OF OLIVER WENDELL HOLMES. BY JOHN



sonality—an antidote to the cold, calculating, scientific spirit of this age.

#### ANNOUNCEMENT.

ANOMALIES AND CURIOSITIES OF MEDICINE. By GEO. M. GOULD, A.M., M.D., and WALTER L. PYLE, A.M., M.D. W. B. Saunders, Publisher. To be sold only by subscription.

Several years of exhaustive research have been spent by the authors in the great medical libraries of the United States and Europe in collecting the material for the work. Medical literature of all ages and all languages has been carefully searched, as a glance at the Bibliographic Index will show. The facts, which will be of extreme value to the author and lecturer, have been arranged and annotated, and full reference footnotes given, indicating whence they have been obtained.

In view of the persistent and dominant interest in the anomalous and curious, a thorough and systematic collection of this kind (the first of which the authors have knowledge) must have its own peculiar sphere of usefulness.

As a complete and authoritative Book of Reference it will be of value not only to members of the medical profession, but to all persons interested in general scientific, sociologic, and medicolegal topics.

An especially valuable feature of the book consists of the indexing. Besides a complete and comprehensive general index, containing numerous cross-references to the subjects discussed, and the names of the authors of the more important reports, there is a convenient bibliographic index and a table of contents.

The plan has been adopted of printing the topical headings in bold-face type, the reader being thereby enabled to tell at a glance the subject-matter

of any particular paragraph or page.

Illustrations have been freely employed throughout the work, there being 165 relief cuts and 130 half-tones in the text, and 12 colored and half-tone full-page plates—a total of over 320 separate figures.

The careful rendering of the text and references, the wealth of illustrations, the mechanical skill represented in the typography, the printing, and the binding, combine to make this book one of the most attractive medical publications ever issued.

#### ANNOUNCEMENT

E. B. TREAT, PUBLISHER, NEW YORK, has in press for issuance early in 1897, the INTERNATIONAL MEDICAL ANNUAL: being the fifteenth yearly issue of that well-known one-volume reference work. The prospectus shows that the volume will be the result of the labors of upwards of forty physicians and surgeons, of international reputation, and will present the world's progress in medical science.

The publisher states that the kind reception accorded to the "MEDICAL ANNUAL" has rendered it possible for him to spare no expense in its production: while the editorial staff have devoted a large amount of time and labor in so condensing the literary matter, as to confine the volume within a reasonable size, without omitting facts of practical importance.

The value of the work will be greatly enhanced by the thoroughness of illustration, both colored plates and photographic reproductions in black and white will be used wherever helpful in elucidating the text.

The volume will contain about 700 pages. The price will be the same as heretofore, \$2.75. Full descriptive circular will be sent upon application to the publisher.



# DEPARTMENT OF PÆDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

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## ORIGINAL COMMUNICATIONS.

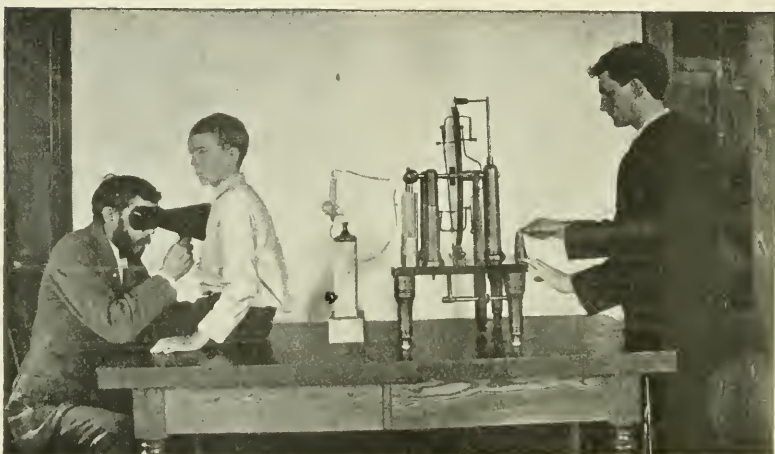
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### THE X-RAY WITH THE NEW HOLTZ MACHINE; SOME OF ITS APPLICATIONS IN MEDICINE AND SURGERY.

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GEORGE B. HENSHAW, M.D.,

*Physician to Out-patients Cambridge Hospital.*



This illustrates the method of using the Fluoroscope for an examination of the thorax. It also shows a complete X-ray apparatus, the New Holtz machine, uncovered, as run by hand, and a Crookes' tube, one of the first designs, mounted on two blocks of wood.

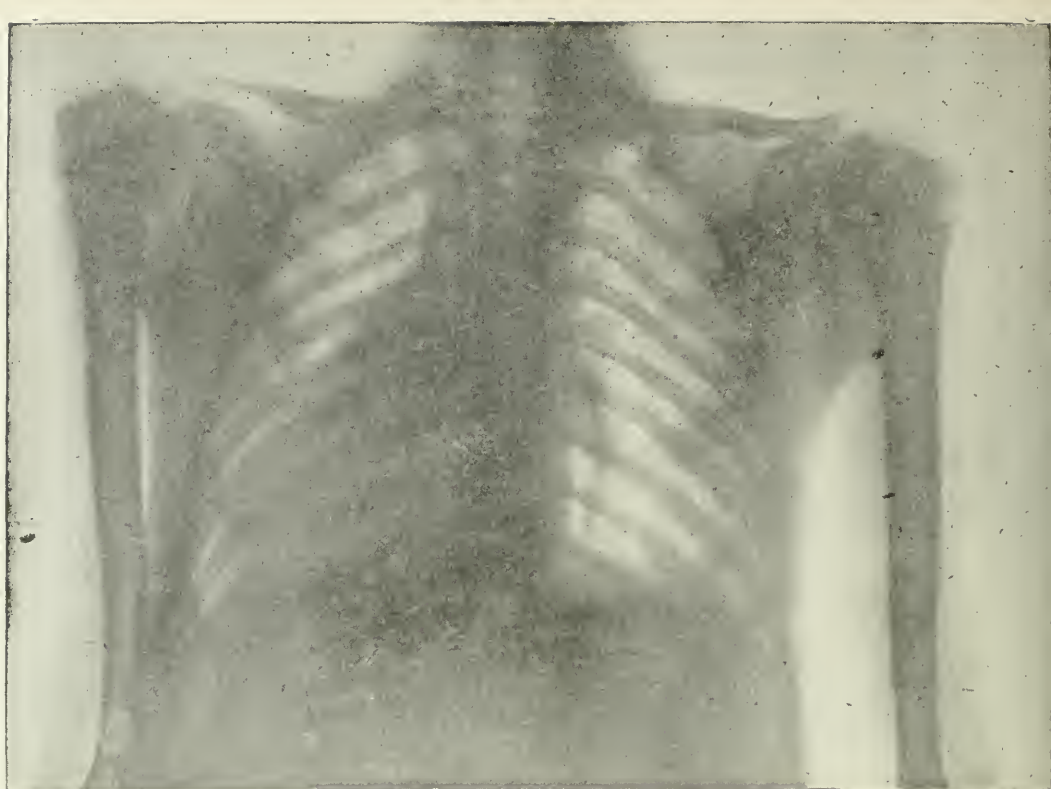
The simplicity and portability of the outfit is to be noted.

This boy, about ten years of age, is the one whose thorax and pelvis were skia-graphed for the illustrations on the opposite page. Exposure for each picture, less than fifteen minutes, July 24 and Nov. 10, 1896. As the boy, dressed as above shown, was lying at full length on a table and the plate holder was placed beneath his back, the views are from behind looking forward.

Note, in the upper illustration, the dorsal vertebræ, and the rib as far forward as the axillary lines, the intervertebral spaces, especially clear in the lower cervical region, the scapulæ, clavicles, the right humerus showing a distinct epiphysis at the head, and the left upper arm close to the side; the clearness of the pulmonary areas, the shadow of the area of cardiac movements, the diaphragm, kidneys and liver shadowed below.

The lower picture shows the lumbar vertebræ, sacrum and coccyx, the two nominate bones and upper half of femurs; the lower abdomen and pelvis. It indicates the possibility of thus diagnosing pregnancy in women during the early months, beside many other conditions normal and abnormal in both sexes.





WARNER  
MANUAL TRAINING SCHOOL  
THE NEW HOLTY MACHINE  
NOV. 10 1911

The time has come when it can be asserted beyond question that no good physician or surgeon can afford to be without the opportunity of making use of the revelations of the Roentgen X-ray to aid him in his daily practise.

It is certain that no consulting-room is fully equipped without an X-ray apparatus. The possibilities of the application of this method of examination in both medicine and surgery are almost daily increasing. When the discovery was first published, a few short months ago, it seemed wonderful indeed that the outlines of the bones of the hand and arm, foot and leg could be so easily and clearly demonstrated in the living subject. Now many investigators have reached the point where they are trying to determine what very few still hidden parts of the human economy cannot positively be examined with the fluoroscope or the skiagraph.

To the anatomist the X-ray has already proved invaluable as a means of revealing the condition and relations of the bones and joints of almost the entire skeleton during life. He no longer must content himself with a study of the dried and shrivelled sinovial race found on the dissecting table. Even the most casual observer can recognise in the spacing as shown in the skiagraphs the difference between a living and a dead joint.

The surgeon has now at hand a ready means of discovering any dislocation in the continuity of any of

the bones, save perhaps fracture of the skull, any dislocation or displacement, the progress of repair or any failure in the reduction of a deformity, the existence and extent of a necrosis or new growth, especially of a bony character, of an old deformity, the presence of any foreign bodies in any of the tissues and the existence of an aneurism. Many cases of doubtful diagnosis have already been satisfactorily settled by this method of examination.

The physician can make himself familiar, in a far more accurate way than ever before, with the condition of such cavities as the thorax, abdomen and pelvis, and can study such organs as the heart, lungs, liver, stomach, spleen, intestines, bladder and uterus both in health and in disease. The preceding illustrations ought to prove sufficiently that these statements are not exaggerated.

An important feature of this method is, that it does not require an elaborate or expensive apparatus and no especial knowledge of physics or of electricity for a successful use of it. Up to the present time the two kinds of electric generators most extensively used have been the Holtz static machine and the Tesla or Ruhmcorff induction coils. Experiments conducted for over six months have convinced me that the Holtz machine has many advantages over any other generator, for the practitioner's use. It is much less expensive, simpler, easier to keep in order, safer and more reliable. It is portable with little inconvenience and so can be



carried to the bedside of any patient. The cost of a complete outfit, including a machine, a Crookes' tube carefully tested, and a fluoroscope, is fifty dollars (\$50.00), which is about one-fourth that of other forms of X-ray apparatus of no greater efficiency. The reason why the induction coils have been used so extensively is because it was found that the old Holtz machine would not produce a sufficiently frequent or regular discharge to keep the Crookes' tube evenly and powerfully excited. Owing to changes in the atmospheric conditions, also, the old statical machines could not always be readily made to yield any current whatsoever.

Especially during the hot summer weather it sometimes required considerable stroking and persuasion to start a spark. Once started, however, it was quite evident that the current from a statical machine was more desirable, for practical purposes, than other forms of current, because its tension was high, it did not overheat and so injure the tubes, and it was not so apt to reverse while in action.

Experimentation resulted in correcting the defects of the old form and the new Holtz machine was designed. This has exceeded the expectations of those interested in securing the best X-ray apparatus. The desideratum is a torrent of oscillatory discharges of great volume and constant potential which can be made to pass through the Crookes' tube without injuring the conditions most favorable to the development of the X-ray.

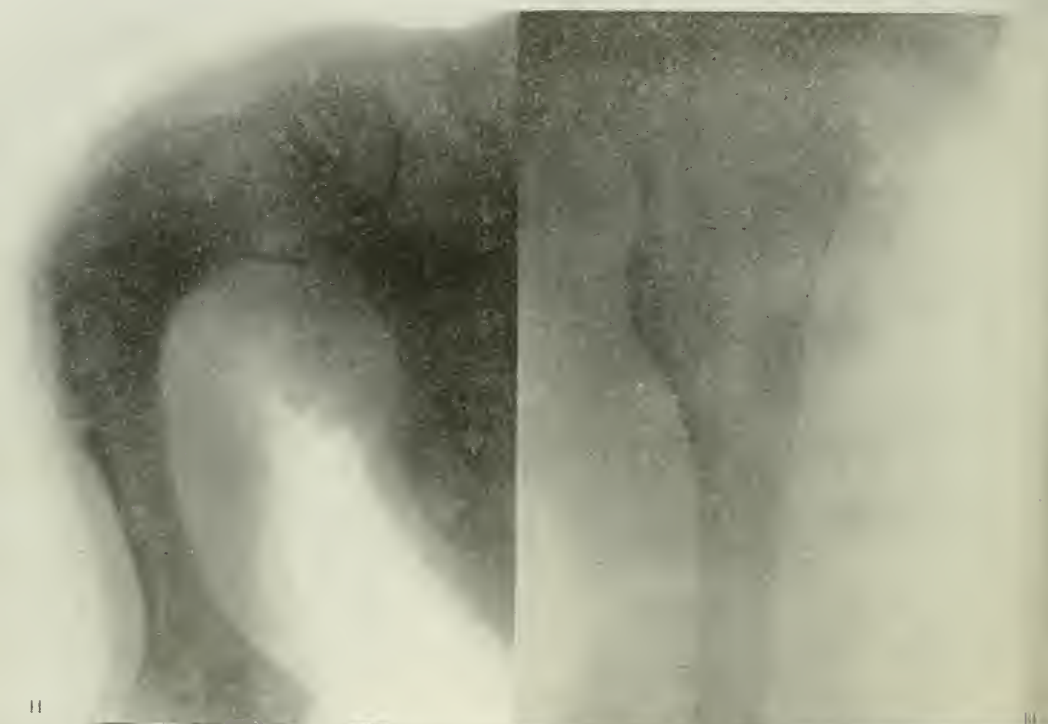
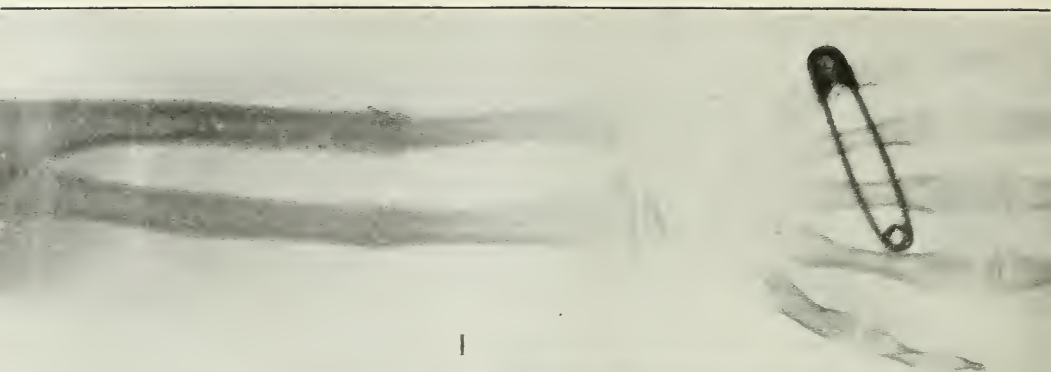
The induction coils require either

a series of batteries or connection with a generator or the street electrical mains. The mains are often very inaccessible or entirely unobtainable. The necessary apparatus is quite elaborate and sufficiently complicated to require the services of an expert electrician whenever it should get out of order. The amount of current generated by the coil is very many times in excess of that which can be forced through the tube, hence there is considerable danger attending the use of this form of apparatus.

Medical literature has abounded in reports of cases of tanning and burning ignorantly attributed to the X-ray.

These deleterious effects upon the hair and skin have been undoubtedly due to the escape of the large excess of electricity from the connections near the tube. That the injuries are not due in any way to the X-ray itself can be proved by the fact that when gloves are worn on the hands while exposed no tanning takes place, and to imagine that gloves influence the Roentgen X-rays is quite absurd. Moreover, I have yet to see a case of tanning or any discomfort in an experience with over a hundred patients extending over months, when the Holtz machine has been used. The unfortunate results reported would, in all probability, have occurred just as frequently without the use of the Crookes' tube, if the cases had been exposed in such close intimacy to any point of escape of a high frequency dynamic current. That such a current acts especially on the skin was known long before a





Crookes' tube was devised. Induction coils for the production of the X-ray are, therefore, dangerous besides being unnecessary.

The New Holtz machine, although designed to be run by hand, as the preceding illustration shows, and when so used has given thoroughly satisfactory results, can be very easily adapted to various forms of power. It can be easily mounted on a table and driven by foot power or can be attached to an electric or water motor. A recent suggestion for its improvement is the reduction of its size by the substitution of several small plates and discs for the two plates of such large diameter and the mounting of a motor on the same axis as the discs.

The tubes, so far, have varied very much in their ability to produce X-rays for practical purposes. The vital point of their utility depends almost entirely, I believe, on the amount of *penetrating* power of the rays. Rays having the power to show the bones of the hand distinctly may not be able to pass through the chest so that anything can be distinguished.

Prof. Thomson is of the opinion that there are different kinds of X-rays. It seems to me that it is not so much a difference of kind as of degree. The degree of penetration of the oscillations (Roentgen's X) emanating from the tube seems to increase up to a certain point the more the tube is used. Then the maximum of utility for that tube is reached.

The heating of the tube to produce certain X-ray effects, such as improv-

ing the definition of the outlines of bones or of organs has been found necessary only when the induction coil is used. Equal definition can be obtained with the statical current without heating or manipulating the tube in the least. The usual test for the tube is the use of the fluorescent screen.

After the eyes have become accustomed to the light in the screen one can soon determine just what can be revealed with that tube. The time of exposure for a successful skiagraph varies chiefly according to the thickness of the part to be examined. With a tube yielding rays of average penetrating power, from twenty seconds to one minute is usually sufficient to make a fully exposed plate of any part of the hand. Two to three minutes have generally been given for a foot or elbow; five minutes for an adult leg, knee, or shoulder; and up to fifteen minutes only for any part of the trunk. After the tube is once thoroughly excited and in running order an increase in the time of exposure does not increase the definition of the part to be examined, as was thought by many experimenters. In this as in exposure to sunlight overdoing is quite possible. The long exposures not infrequently reported are no longer necessary. Since overheating of the tube has been found avoidable, the life of the tube, its duration of usefulness, is very much prolonged. This materially diminishes the expense of running an apparatus every day.

In office practice, both methods of



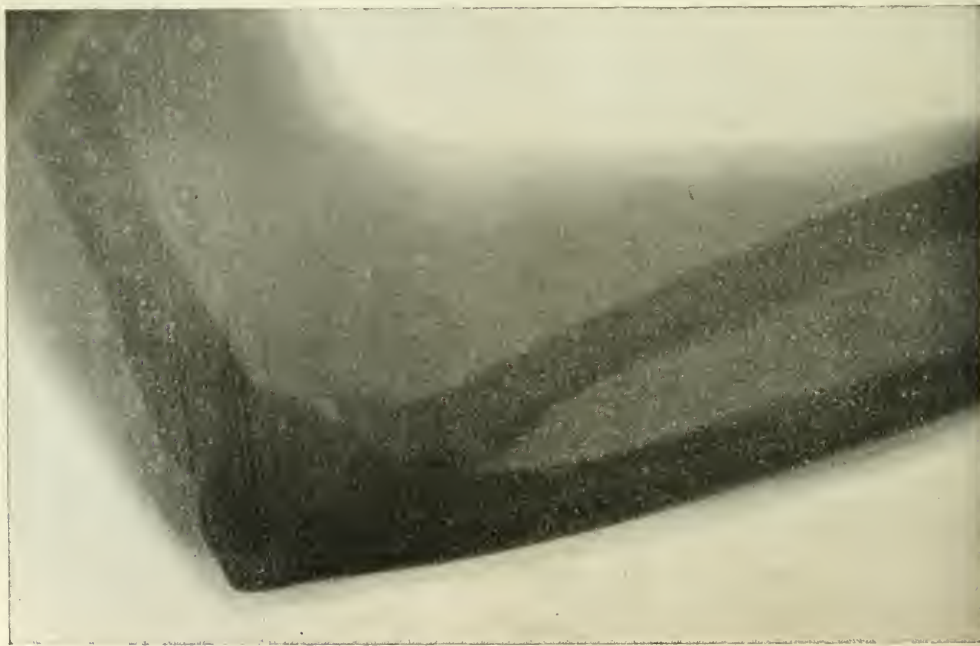
examination, by the fluoroscope first, and then also by exposing a plate for a skiagraph should be used.

For the examination of organs in motion, such as the heart, lungs, or liver, the physician must rely almost entirely on this fluoroscopic examination.

But of this more will be noted later on.

There are many reasons why the practitioner should have a complete apparatus in his own office instead of relying upon the use of one at a laboratory or hospital. In his own rooms he can control the use of it completely and so avoid unpleasant curiosity and criticism and correct wrong impressions received on the part of the patient. Concerning the treatment of fractures many surgeons have had good reasons for objecting to the patient's seeing the skiagraph. Many deformities as shown on the

plate are more apparent than real, hence the importance of taking pictures from two or more points of view. A Colles's fracture when viewed from in front may appear in perfect apposition, whereas a side view might reveal a startling malposition of the fragments. However expert the electrician may be he cannot appreciate the significance of a case of fracture from a medical point of view, so that the fluoroscopic examination as well as the taking of a skiagraph should be done by the physician himself, especially when he is using the X-ray for diagnostic purposes. For my own satisfaction and protection I feel that negatives of a case of broken bone before as well as after treatment are the very best kind of records to be kept of the case. They are facts beyond which no one as yet can go—not opinions, however carefully trained.







(1.) M. D., boy, 11 years old, fell and sustained a fracture of the external condyle of the right humerus about four years ago. As the surgeon who attended him then has since died, no exact report of what was found at that time can be secured. The boy's father thinks that there was some doubt as to whether a bone was broken or not, as there was never any crepitus, but as it was evident that the joint had been involved the arm was put up for a time in an internal angular splint. The impairment of motion is well shown in this illustration, as this is the limit of extension. There is some weakness of the joint, otherwise no inconvenience. Some thickening and induration about the joint still present. Skiagraph taken for diagnostic purposes. Exposure 12 minutes. View, half way between posterior and external aspects of joint. No active treatment advised.

(2.) F. D., 35 years old. Intended to show the perfect hand of an adult male. Exposure 1 minute. Note the small sesamoid bone near the distal end of the first metacarpal, also the line of shading between skin and muscles, especially near wrist.

(3.) Left foot, naked, of an adult male, 30 years old. Exposure 2 minutes.

(4.) Right foot of same person as (3) taken at the same time and on the same plate with its neighbor. This is covered with a sock and is encased in a pointed-toe shoe. It shows how the toes are crowded together and bent for the sake of external appearance.

To be sure also that there is no fracture or displacement is a great advantage when the anxious patient presents himself for examination at the office with the history of a severe trauma.

This, (page 304) is a case of severe injury by a violent fall when it seemed quite probable that there might be a fracture near the elbow joint, left arm. The skiagraph, as here illustrated, showed the bones intact. The patient, a man of thirty, suffered considerable pain on motion of the joint and there was some swelling present, no crepitus. The arm was bare, exposed two minutes.

The fluoroscope was used for the antero-posterior view. No injury found.

#### FULL PAGE ILLUSTRATIONS.

Case I. M. M., a girl five years old, in trying to climb over a wooden gate placed at the head of a flight of stairs, fell and sustained a greenstick fracture of both radius and ulna, about the middle of the shafts. The resulting deformity was a slight bowing of the left forearm. This was easily reduced. The skiagraph was taken a week later, while the anterior and posterior wooden splints were still in place, and the forearm was covered in with a cotton roller bandage. The end of the bandage was fastened with the safety-pin, the shadow of which appears so distinctly. The wooden splints extended to the phalanges. This half-tone reproduction does not do the skiagraph justice, for this shows even the graining in the wood of the splints, while the reprint only shows

a suggestion of this in the upper forearm. The nucleus of the bones of the wrist and the epiphyses of the radius, metacarpals and phalanges can be clearly made out. Exposure of four minutes, August, 1896, taken for verification of the position of the fragments, shows nothing left to be desired.

Case II. M. W., a girl of twelve, who, when she was three years old, fell out of a third story window. The force of the fall was broken by her striking against a clothes-line which yielded to her weight. She evidently sustained a greenstick, multiple and impacted fractures of the left humerus and an impacted fracture of the left femur below the lesser trochanter. (Plates II and III.) According to her parents the signs present at that time were pain, swelling, deformity and disability, but no crepitus, and at several consultations of physicians no definite diagnosis of fracture was made. The arm and leg were retained in splints for only a very few weeks.

I first saw her on Nov. 21, 1896. She was unusually large and well developed for her years. The bulging deformity of the left shoulder was very marked. The humerus suggested the letter S with its lower loop twisted at right angles, and measured two and one half (2 1-2) inches shorter than the humerus of the right arm. She naturally held her forearm somewhat flexed with hand slightly extended at the wrist and thumb abducted. It was difficult for her to carry much of a weight with her extended arm and



hand at her side, but she preferred to hold even a book with forearm flexed and hand resting on her hip. She also has some difficulty in reaching her back hair with her left hand.

On Jan. 11, 1897, she was admitted to the Children's Hospital, Huntington Ave., Boston, and on the following day Dr. E. H. Bradford did an osteotomy. Driving a chisel directly through the skin at a point opposite the centre of the greatest curve in the bone, he cut entirely through the bone and then forcibly straightened the humerus and corrected the larger part of the deformity almost immediately. Since that time the arm has been held in extension with weights. Although she is still in hospital I consider the result already obtained a triumph of modern surgery. A skiagraph as the arm now appears will be presented in a later article.

Plate III. Impacted fracture of femur of same case as II. Her left femur is two and three-fourths inches shorter than her right. Hence there is quite a limp in her gait. This was creating a perceptible curvature of her spine until somewhat corrected by wearing a thickly cork-soled shoe. It is purposed to do an osteotomy here also during the coming summer vacation. The skiagraphs show the posterior aspect of the upper arm, but anterior of the thigh. Exposure,

12 minutes, while patient was wearing a street dress with loose sleeves. Note the outlines of the layers of clothes, skin, muscles, and bones.

Case III. Plates IV and V. P. R., student, aged twenty-one, struck a forcible blow with his left hand while playing football: symptoms of pain, swelling, tenderness more or less definitely localized. Repeated examination failed to get any crepitus, so not recognized as a fracture until skiagraph taken. This revealed what is clearly shown in the plate, a transverse fracture of the fourth metacarpal near the middle of the shaft, left hand. The hand and wrist were put up in a light wooden splint, with strips of adhesive plaster applied next to the skin. Fingers flexed.

Plate V is of the same hand taken three weeks later. IV shows the palmar aspect of the hand, V the dorsum.

The somewhat flexed index finger and the middle finger tip shown near the left border of Plate V are of another case, where the question was raised as to the diagnosis of "base ball finger." An indefinite injury of long standing, with symptoms of occasional stiffness and discomfort in the first joint. The picture shows a perfectly normal condition of the bones and joint.

*(To be continued.)*

## INTUBATION, WITH AN ANALYSIS OF FIFTY CASES.\*

BY EDWARD M. PLUMMER, M.D.

The purpose of this paper is to awaken an interest in a comparatively new method of relieving dyspnœa, and also to present for your consideration an analysis of fifty cases of intubation in private practice. Where this interest has not been thoroughly established, it is necessary to take into account the claims and vantage of the older operation for the same purpose. I shall endeavor, therefore, to sketch briefly the history of tracheal operations for the relief of dyspnœa, to indicate the lines along which a comparison between tracheotomy and intubation should be made; to describe the technique of the new operation; to consider its own peculiar problems and difficulties; and to state my own experience in so far as that sheds light thereon.

If one were to search historical records for the first recorded operation upon the trachea for the mechanical relief of unremitting dyspnœa, one would have to consult some of our oldest medical literature. Prior to the beginning of Christianity, Asclepiades of Bithynia, it is said, won for himself a great reputation by his practice of tracheotomy in angina.

During the barbarism of the dark ages, when not only science, literature and art were submerged in the

advancing waves of superstition and ignorance, but when even the slightest manifestation of intellect for the betterment of human conditions was, if not repressed, at least not stimulated, tracheotomy fell into disuse, and we do not hear of it again until the revival of learning in the fourteenth century, when it was performed at various intervals with unfavorable results. Home, in 1765, was the first to recommend tracheotomy in croup. A successful operation was also performed by Bretonneau in 1825, and another by Trousseau in 1833. Through the latter's industry and careful attention to details, the operation was placed upon a firm basis, so that, although prior to 1850, owing to the infrequency of success, it had been regarded with doubt, yet it became established as a valuable addition to surgery.

Nevertheless, the unfavorable results ascribed to tracheotomy, together with the time required for its performance, and the shock and hæmorrhage attendant upon it, led an American surgeon, Joseph O'Dwyer, of New York, to devise the operation known as intubation. Says O'Dwyer, "If I had had one recovery in ten from tracheotomy, intubation would probably be still a thing of the future." Thus impressed with the

\*Read before the Annual Meeting of the Maine Medical Association, June 4, 1896.

insufficiency of the only method in vogue for relieving dyspnœa, Dr. O'Dwyer instituted experiments with a definiteness, and continued them with a persistence imparted only by a clear formulation of the end in view and the conditions of its achievement. It is by these characteristics, as well as by the ensuing successful results, that his labors are distinguished from the few preceding timorous suggestions of, and abortive attempts at intubation. We must not on this account, however, fail to notice and honor the first appearances of the idea.

Over two thousand years ago, the idea of inserting a tube into the throat to admit air to the lungs was conceived by Hippocrates. The suggestion of Hippocrates seems not to have been duplicated or expanded until Chaussier, in 1780, advocated the insertion of flexible tubes into the larynx in cases of laryngeal obstruction. The practicability of this proposition was demonstrated in 1801 by Dessault; in a case of œdema of the glottis he passed into the larynx a flexible catheter, which he allowed to remain two days, thereby saving the life of a patient. This device, however, did not come into general use. Although mention of the operation is made in literature by such observers as Ducasse, Finaz, Dieffenbach, Benoit, and others, we do not hear of any attempts to intubate the larynx until September, 1858, when Bouchut read before the Academy of Medicine in Paris a paper entitled "A New Method of Treatment of Croup

by Tubage of the Larynx." In this paper he described the ill-adapted tubes he had devised and the manner of placing them in the larynx. It was, however, Bouchut who performed the first intubations; but his procedure, ridiculed and condemned by Trousseau, fell into disuse and was soon forgotten.

\* In 1885, Dr. O'Dwyer, after five years of careful experimentation, pursued without prior knowledge of what had been done, proposed his method, and described the ingenious instruments he had evolved. Although little more than a decade has elapsed since he first gave to the world this brilliant contribution to legitimate surgery, yet it has already been the means of bringing relief to thousands of suffering children throughout the civilized world.

While intubation has thus gained by its successes a certain prestige, it cannot be said that it has entirely supplanted tracheotomy. A delicate but necessary task confronts us in attempting to compare as to merit the two rival operations. The reason for instituting this comparison is obviously pressing; the conditions for both operations are the same, namely: laryngeal obstruction as evidenced by a croupy cough; continued depression of the suprasternal, supraclavicular, and intercostal spaces; together with the noticeable stridulous breathing. If these symptoms be present and progressive, it is high time that the dyspnœa be relieved by the creation of an artificial air-passage; otherwise, death directly by asphyxia is invited.

But even if asphyxia do not ensue, the insufficient oxygenation of the blood, together with the exhaustion brought about by the continued straining for air, reacts in the most unfavorable way upon the vital powers, and seriously affects them in their struggle with the specific poison. Moreover a third menace, due to the depleted state of the lungs, is the imminence of capillary bronchitis and pneumonia.

Tracheotomy and intubation are the only operations designed to furnish a passage for the air into the lungs when the larynx is thus obstructed, and from the nature of the case it would seem that they are the only possible operations. Upon the development of the proper symptoms, the surgeon must resort to one operation or the other; it becomes incumbent upon him, therefore, to sum up the evidence in favor of each procedure; to base thereon a general judgment as to their comparative value; and, finally to consider whether there be in any special case conditions warranting a reversal of the judgment for that case.

Inasmuch as the formal definitions of the two operations suggest the lines along which a comparison should proceed, the privilege of reviewing them is requested. The inquiries that arise can be answered, of course, only by performing and observing the operation as experiments.

Both tracheotomy and intubation make use of a rigid tube for establishing communication between the external air and the lungs. In intu-

bation, however, the tube is inserted into the passage that is naturally provided for such connection, but which is blocked up by yielding membranous accretions; in tracheotomy, on the other hand, the tube is inserted into a new passage created by the knife.

With regard to tracheotomy, we may ask the following questions;

(1.) Are there any features pertaining to the technique of the operation, that are unsuited to the exigencies and usual conditions of the occasion?

(2.) What are the possible and likely consequences of the incision, and of the insertion and maintenance of a tube in the opening?

(3.) Are there any disadvantages in the creation of an unnatural air-passage?

Under the first question we shall consider the time and light required, and the necessity of giving ether.

To a child in danger of suffocation, the element of time is of primary importance. After preparations for asepsis have been completed, a careful tracheotomy may require from ten to fifteen minutes. While the time consumed in operating may be abridged, if the exigency be great, yet even by the most skilled this abridgment is attended with risk, especially if the trachea to be operated upon be imbedded in the plump neck of a young child. In short, it seems to me that the time necessary for a safe tracheotomy (and in that time I conclude the time consumed in asepticising) is so long



that the confidence of the surgeon in the ability of that operation to meet *all* the exigencies of his practice is often shaken.

Again, light sufficient for so delicate an operation is too often lacking in the usual circumstances. The writer has a vivid recollection of performing a tracheotomy upon a young child, under the flickering light of a candle held in the unsteady hand of the child's father.

The bad feature connected with the administration of ether is that it irritates the bronchial and pulmonary mucous membranes, thus causing them to secrete abundant mucus. In the attempt to cough up this mucus, the dyspnoea is temporarily increased, and it is likely enough that the irritation invites a downward extension of the diphtheritic inflammation. The objection to substituting chloroform for ether is, that although it is rapid in its action and does not irritate the air tract, it may result in cardiac syncope.

The second inquiry, as to the complications that may arise from the incision, and from the maintenance of the tube in the opening, deserves the most careful study.

Hæmorrhage is always to be considered; the most careful efforts to avoid the contiguous blood-vessels are apt to be thwarted by the constant motion to and fro of the field of operation under labored respiration. Instances are on record in which the carotid and even the innominate arteries have been wounded. A hæmorrhage usually causes more or

less delay in opening the trachea. In this connection, also, it should not be forgotten that in an operation upon a child loss of blood is to be deprecated, and especially so, if he be suffering from a disease of germ origin.

From an *a priori* point of view it would seem not improbable that the insertion and maintenance of a tube in the aperture created by the incision might injure superficially, if not seriously, the exposed tissue and membrane with which it comes in contact. Ulcerations, due to the continued pressure and friction of the tube, while not frequent, are almost invariably mentioned by records covering a large number of cases. These ulcerations may be either in the wound itself, or in the posterior wall of the trachea at the place of contact with the distal extremity of the canula.

\* After a long wearing of the tube, granulations are apt to form, not only at the external orifice of the wound, but also in the trachea itself. Those in the trachea may occlude the natural passage so completely as to render it impossible to dispense with the canula until they have been removed.

Another contingency is the infection of the wound. It would seem that the wound in the condition in which it is left would present difficulties in the way of asepsis that are not amenable to the usual aseptic technique. Beside the entrance of sepsis from without, the invasion of the wound and adjoining skin by

the diphtheritic inflammation is not an impossibility.

Immediately after the incision has been made, and the tube successfully inserted, the patient is liable to a shock that sometimes becomes an important factor in the prognosis of the disease.

We have raised the question as to whether there be any disadvantage in the creation of an unnatural air channel, from consideration of the fact that air entering the lungs naturally through the nasal channels is purified, warmed, and moistened in the passage. Bronchitis and pneumonia have been traced to the unfitness for respiration of the air thus admitted immediately into the lungs. The objection contained in this inquiry, however, may be removed, to a certain extent, if the air in the room in which the patient is confined can be heated to the proper temperature and supplied with sufficient moisture.

Finally, then, we may say of tracheotomy, that while it is a demonstrated means of admitting air to the lungs without hindrance to deglutition, and thus of relieving *dyspnœa*, nevertheless it is attended with possibilities of danger, which may become more likely according as the skill of the surgeon is less. Certainly, if it be possible to restore the respiration through the natural passages by a bloodless operation, the creation of an open wound and the exposure of membrane immediately adjoining the seat of diphtheritic inflammation, appears to me, if not irrational and dangerous, at least, an unnecessary exhibition of

a skill developed by a practice that perhaps was not so successful.

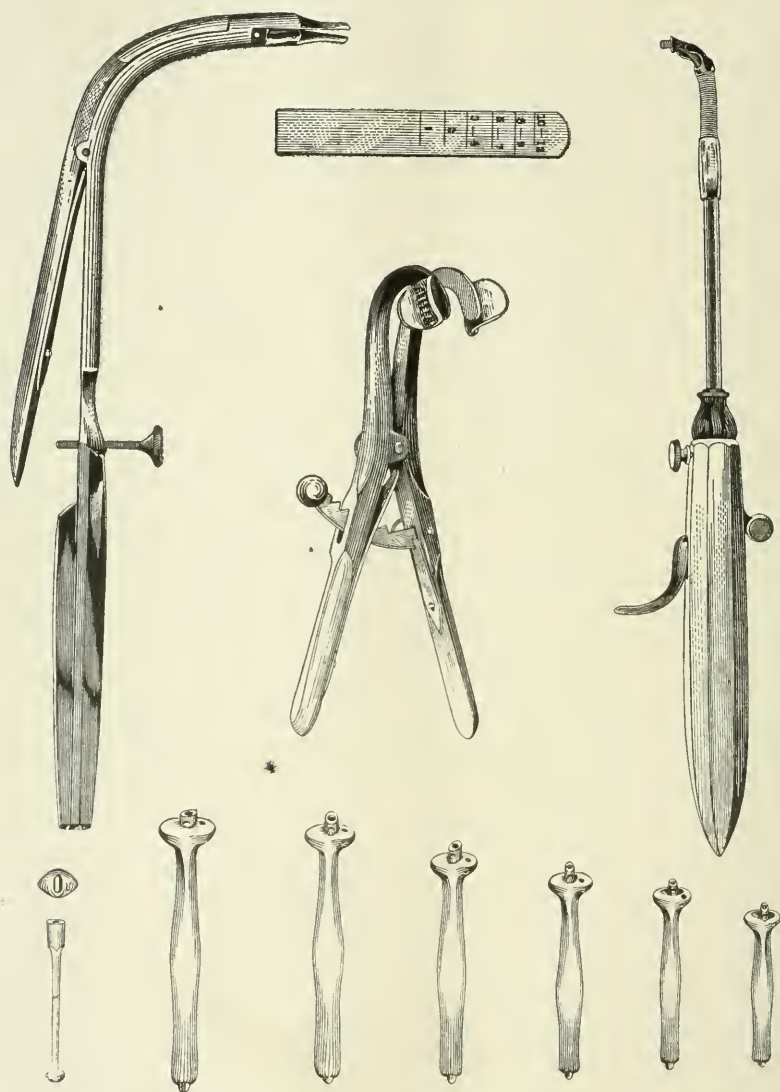
Historically, the objections to tracheotomy led to the attempt to restore respiration by a simpler procedure, which consists in maintaining the natural passage by means of a metal tube inserted in the larynx and trachea. That the larynx will not spasmodically eject a tube has been abundantly proved; the sudden irritation and reflex action caused by the entrance into it of a drop of water or a crumb of food is entirely absent in case a tube be fitted into it. Intubation is defined, in the National Medical Dictionary as "the insertion and maintenance of a tube within the chink of the glottis." Whatever difficulties may lie in the path of this proposed procedure, and whatever consequences may attend it, a simple analysis of the definition shows that there can belong to it none of the unpleasant features that bring tracheotomy into the question; the operation requires no incision, and accordingly is exempt from any of the dangers that might accompany the use of the knife.

A study of the technique contrived by Dr. O'Dwyer will obviate many of the difficulties the definition would suggest. We, therefore, venture to give a brief description of the operation as practiced at the present time.

It is presupposed that the surgeon, before attempting to intubate a living larynx, has rehearsed the operation many times on the cadaver, not confining his close attention to one

cadaver only, but extending his practice to a dozen or more. This practice should be executed under the guidance of a competent instructor. In this way only can the operator hope to acquire the tactual

skill so essential in the performance of this operation. The unfavorable results reported by some operators are no doubt due to a lack of skill in operating.



O'DWYER'S INTUBATION INSTRUMENTS.

Familiarity with the appearance and utility of the introducer, extractor, mouth gag, metal gauge or scale, tubes of various sizes with their proper obturators, is herein taken for granted, as they are accurately described in all text books on modern surgery.

The patient should be enveloped from the neck down in a light blanket, in such a manner as to prevent interference of his hands or arms with the operation, and should be held upright in the arms of a nurse, who should restrain the legs of the child with her own. Having inquired the child's age, the physician selects to accord with it, by the aid of the scale, a tube which is already fixed upon its proper obturator. The obturator he immediately screws tightly to the introducer. A mouth-gag is now inserted into the patient's mouth, on the left side, well back between the teeth; the head is held and the gag steadied by an assistant standing behind. Holding lightly in his right hand the introducer laden as we have shown, the physician faces the child and is ready for the insertion. He passes his left index finger into the fauces until it reaches the epiglottis, which he therewith elevates; the introducer is placed in its initial position with the handle vertical and close to the chest. The tube, which is horizontal and points in toward the pharynx, is passed quickly over the tongue until its distal extremity reaches the tip of the left index finger; the handle of the introducer is then raised in such a manner as to in-

cline the tube downward and insert its extremity into the chink of the glottis; at the same instant, the finger-tip is slipped aside, and the tube is rapidly but gently lowered into its proper position. Immediately the slide of the introducer is shoved forward so as to release the hold of the obturator upon the tube, the index finger is placed upon the collar of the tube, and the obturator is withdrawn. Insertion in this manner need not, if skill be used, occupy more than eight seconds; if at the end of that period the tube be not in its correct position, it is better to withdraw it, and after a short rest make another attempt.

It should be mentioned here that no tube is properly equipped unless it be provided with a fine thread, which, drawn through the hole in the collar, makes possible an easy removal in case the tube should accidentally slide into the œsophagus instead of into the larynx. When ease in breathing gives evidence that the tube has been properly placed, the thread should be withdrawn. Of course no precise time for wearing the tube can be specified; practically it should be worn as long as there exists a laryngeal stenosis. The judgment of the operator as to when the stenosis has sufficiently subsided to warrant extubation must be based on general symptoms.

Preparations for removal are the same as those for introduction; and the insertion of the point of the extractor into the orifice of the tube is accomplished by the same man-



œuvre as that by which, in introduction, the distal extremity of the tube was thrust into the chink of the glottis. Removal, however, is not so easy as introduction. The first difficulty consists in the likelihood of the point of the extractor to slide into the space between the tube and laryngeal wall. If this misplacement occurs, the spreading of the beaks outside the tube may result in laceration of the laryngeal wall. If the walls be much torn, the tube is quite likely to slip into the trachea. Of course, if the guard screw of the extractor be properly set, the beaks can be spread for a distance but little greater than the diameter of the interior of the tube; even then, however, misplacement involves danger.

The second difficulty is usually experienced: a steady pressure maintained upon the lever of the extractor does not always prevent the beaks, when properly engaged within the aperture of the tube, from slipping and losing their grip. To overcome this difficulty, Dr. Edward H. Nichols, of Boston, has devised a special extractor.

It may safely be asserted that in extubation, as in all matters requiring delicate sensational discrimination and adjustment, practice is the fundamental pre-requisite. Hence every operator should prepare himself by many preliminary extubations performed upon the cadaver. So much for the technique of the operation.

It has been asserted by some that intubation has certain objectionable

features of its own that tend to counterbalance the defects of tracheotomy. I shall endeavor to embrace and consider the objections that seem to me the most important in a somewhat methodical criticism of the operation; the scope of the criticism is suggested by the definition we have already cited, and indicated by the following questions:

(1.) What are the risks of insertion, and to what extent may these be nullified by technique?

(2.) Are there any bad effects made possible by the maintenance of the tube within the larynx for a considerable time?

As regards insertion, it must be remembered that until the tube is in its correct position, the obturator completely blocks its interior space; accordingly, during the period occupied by insertion, the passage of air is completely shut off. Is this period of sufficient duration to give the already weary patient a perceptible shock? I am convinced that if care and skill be used, such an event is only a remote contingency.

Let it be remembered, that while the left index finger holds the epiglottis, respiration need not be completely obstructed; then to incline, insert and lower the tube are adjustments that admit of so speedy, and withal so nice, an execution, that no shock need result. In but four of my cases, and those among the first ten, was a second attempt necessary; in two or three of the first cases the time consumed was somewhat over ten seconds; in no one of my last

forty intubations did the bare insertion occupy more than eight seconds.

There are, however, other and more important risks involved in insertion, from the fact that the distal extremity of the tube must traverse the swollen interior of the larynx and the trachea for a distance equal to the length of the tube. A pertinent question arises as to whether this movement may be brought about by so slight and successfully directed a force as to cause no injury to the tissue along which it takes place. It here becomes evident that a most essential presupposition of a successful insertion is a knowledge of the anatomy and internal shape and contours of the larynx and trachea. If the operator have this knowledge, and if through practice he has brought his hand to conform its movements to the picture in his mind, there is only a very slight possibility of his thrusting the tube into the soft tissues of the larynx. The false membrane that fills the passage readily yields under a slight pressure, so that the interior contours of the normal larynx remain a valid basis for work upon the diseased larynx. Indeed, the ventricles that in the normal larynx would tend to catch the end of the tube and cause it to diverge from its proper path are, in the diseased organ, filled in with masses of membrane.

The possibility of detaching portions of the false membrane and forcing them into a lower position than they would have occupied, seems to me the only contingency

entirely unavoidable by a careful technique; and it is in dealing with this possibility that we must avoid the slightest appearance of dogmatizing. If the actual occurrence be other than very rare, it certainly constitutes a valid basis for opposing intubation, except in those circumstances that permit the patient to be watched by a trained eye with adequate closeness. Even if there be but a remote possibility of the occurrence, the assertion is thereby made good, that it would be better to have intubated patients placed together in a hospital where they can remain under the constant scrutiny of a physician and nurse. The danger of the occurrence lies, of course, in the fact that the membrane, when pushed down, is quite apt to cover the lower orifice of the tube, and thus produce, in a sudden and most startling manner, the death which the insertion is designed to avoid; the membrane may act as a valve, permitting inhalation, but shutting off exhalation. Let us consider this contingency under three headings:

(1.) How far may it be avoided by technique?

(2.) The manner of relieving the intense dyspnoea produced by its occurrence.

(4.) The testimony of recorded statistics with regard to the frequency of its occurrence.

How far may the contingency be avoided by technique? We answer, to a considerable degree, although not entirely; if the tube be inserted in conformity with the interior direc-

tion and structure of the passage, and if it be inserted with the gentlest possible pressure, there is obviously much less danger of the membrane's becoming detached and crowded down than there would be if the extremity of the tube were tentatively scraped in a nervous manner, first against one side of the organ and then against the other.

How may the produced dyspnœa be relieved? Immediate extubation is imperative, and when performed is usually followed by the expectoration of the membrane.

What and how valuable is the testimony of recorded statistics as to the degree of probability belonging to this contingency? We reply that the records of cases performed under the conditions of careful technique are invaluable here, because they constitute our only basis for estimating the importance of this possible accident as a ground for opposing intubation. Dr. Johann Bókai, Professor in the University of Budapest, in the *Jahrbuch für Kinderheilkunde und Physische Erziehung*, Leipzig, June 5, 1894, concludes from his own experience in five hundred cases, that pushing down the pseudo-membrane seldom occurs, and only in rare cases terminates fatally. Dr. V. Ranke, of Munich, the pioneer of intubation in Germany, also states from an extended experience that the likelihood of the occurrence has been greatly exaggerated. Says Dr. George McNaughton; "I can recall but three instances in 143 cases; it proved fatal in two cases; the patient in the other case recovered her breath and lived several days

after." The accident has happened to O'Dwyer only three times, and then in his first 209 cases. Francis Huber, Dillon Brown, Waxham, Ganghofner, Baer, and Northrup, all emphasize the fact that this accident is of very rare occurrence. In no one of the forty-seven intubations performed by the writer for the relief of acute laryngeal stenosis, has there been any cause for alarm on this score.

We conclude, therefore, that inasmuch as the contingency we have been discussing is of so rare occurrence, that since its bad effect may be stopped by extubation, it deserves very little weight as a general objection to the operation.

We come now to a consideration of the effects to be traced to the maintenance for a more or less extended period of the tube in the position it has acquired by insertion. Having in view the end of distinguishing and properly appreciating these effects, let us try to imagine what effects would occur, should the normal larynx be intubed, from complications that are due to the diseased condition of the larynx.

When it is remembered that the larynx is in juxtaposition with the organs of deglutition, and that to the act of deglutition there is necessary a definite muscular adjustment of the larynx, the performance of which might be termed its negative function, and that the strength of the muscles that accomplish this adjustment is nicely adapted to the unvarying weight of the organ to be moved, it becomes a pertinent inquiry as to

what may be the effect of suddenly fitting into this organ a tube that may weigh anywhere from 4 to 15 grammes.

Experience has demonstrated that intubation usually interferes with deglutition to so considerable an extent that the tube is continued in the larynx with difficulty; food and drink, instead of passing over the glottis into the œsophagus, tend to slip through the tube into the trachea. Out of forty-seven intubated children, I found but nine who were able to sit up in bed and eat in the natural manner. Of these, but one was under five years of age; the rest were considerably above five. I may here give a general conclusion with regard to feeding intubated children; the younger the child the more difficult is the task of eating.

Aside from the immediate disagreeableness occasioned by the false passage of food, the fact that it renders imminent *Schluck pneumonie* forces the phenomenon into our most serious consideration. Just how pronounced the tendency would be were the tube inserted into the normal larynx, and just to what extent it is intensified when the larynx is burdened with pseudo-membrane, it is difficult in the absence of the proper experiments to determine. Whether it be that the weight of the tube prevents the necessary elevation of the larynx, or whether motion of the epiglottis be hindered by the pressure and position of the collar of the tube, or whether the hindrance be due to some other cause obscured by our imperfect

knowledge of the mechanics of deglutition, that the presence of the tube in the larynx constitutes in a majority of cases a distinct interference with the act of swallowing remains a fact, the significance of which for our purposes is not at all lessened by the lack of an adequate explanation.

It is a mistake, however, to hold up as an ideal of the surgical art an operation that is entirely unaccompanied by temporary inconvenience and positive disadvantage. Of no artificial invasion of the human organism, no matter how skilfully performed, can it be claimed that no restrictions attend it; the invasion is made for the purpose of producing some ulterior salutary effect, either upon the entire organism or one of its organs, and the accompanying restrictions are borne with, if possible, for the sake of the greater ulterior benefit.

Of course a temporary interference with deglutition by intubation must be considered in this light, provided that by reasonable effort the system may be supplied with a proper amount of food without entrance of a portion of it into the trachea. May this be accomplished, and how? The existence of this problem does not necessarily constitute an objection to intubation; rather, its solution forms a part of the *ensemble* of the operation: if a good solution do not exist, the operation must be condemned at once: if it do exist, it must be considered as a part of the operation, opposition to which must be on entirely different grounds.



We answer that the system may be supplied with food and the trachea protected from its intrusion in one of the four ways that follow:

First, by the Casselberry method. This method consists in placing the child in a position, the advantage of which was made known by Dr. Casselberry, of Chicago; Dr. Casselberry discovered that by placing the child horizontally on its back and lowering its head from the plane of the rest of the body until the pharynx is on a lower plane than the larynx, deglutition takes place naturally and with comparative ease. When the head is in this position the force of gravity helps to carry the food safely past the glottis.

Whether the child eats in the erect or in the Casselberry posture, the food should be of a semi-solid consistency; under no circumstances should liquids be used, as they are apt to trickle into the tube and thus become a prolific cause of *Schluckpneumonie*.

I have made use of the following articles of food; custard, corn starch pudding, blanc mange, ice cream or sherbet, oranges, bananas, jellies of various sorts, together with solids, such as small cakes, cinnamon buns, bread, etc., soaked in milk or sherry wine.

My usual method has been to ascertain first whether the child could eat in the erect posture, and failing this to try the Casselberry position. I have resorted to the latter position successfully in thirty-two cases, and have failed to make it succeed in six cases.

For cases in which the Casselberry method does not prove effectual, there is open one of the three remaining methods.

Recourse may be had to rectal alimentation. My experience in rectal feeding proved very disappointing; not only did the necessary manipulation cause more or less exhaustion, but the rectum soon developed a tendency to repel the blandest injections. Nevertheless, in four of the six cases above mentioned, the only nourishment given was in the form of nutritious enemata. Among the articles of food used in this way were milk, eggs, bovine, extracts of beef, pure beef-juice, etc. The most satisfactory results were obtained from the use of milk peptonized by the addition of Fairchild's pepsin.

If rectal feeding be not feasible, we may resort to feeding the child through a stomach tube. This procedure, beside being extremely disagreeable to the child, is apt to wound the throat and nose. To be fed properly in this manner the child should be seated upright in the lap of a nurse. A soft rubber catheter, well lubricated, is then introduced through the nose into the œsophagus: through this catheter milk is poured into the stomach. The physician should in all cases do this himself, unless he have the good fortune to be assisted by a nurse who has had previous experience in this procedure.

It was necessary for me to resort to this mode of feeding with but two patients, both of whom were between one and two years of age. The

amount of nourishment given in this way will of course vary somewhat with the age and circumstances of the case; in my cases the usual amount given at a time was from three to four ounces. I have employed with great advantage Bryson Delavan's alimentation bottle. A flexible catheter of small size replaces the ordinary stomach-tube, and is introduced not into the stomach, but simply below the pharyngeal constrictors.

Bókai has recommended the removal of the tube each time before the taking of food. In no case have I resorted to this method of feeding; the excessive manipulation of the diseased structures in and about the air-passages has been the ground on which I have avoided it.

It has been objected by Sajous, among others, that the tube may fail to remain in the position into which it has been placed, either by sinking further into the trachea or by being coughed up as a foreign body. Obviously this objection cannot be adequately considered until the tubes evolved by Dr. O'Dwyer have been made the subject of careful examination and study. The relevant facts are these:

(1.) The external conformation of the tube is studiously adapted to the internal conformation of the organ.

(2.) The size of the tube may be made to correspond accurately with the size of the larynx by the aid of the scale.

(3.) The collar of the tube, if properly selected, rests upon the ven-

tricular bands in such a manner as to form a mechanical barrier to further movement downwards.

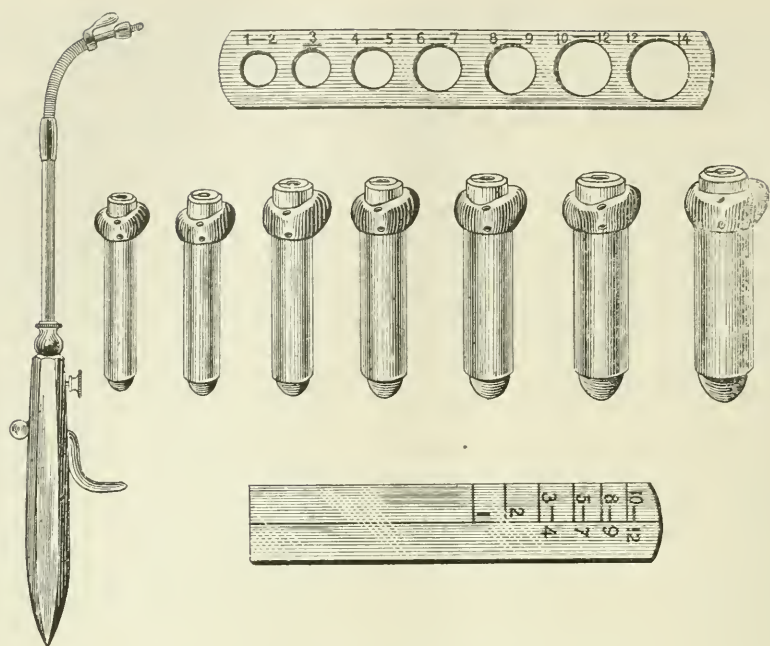
(4.) The tube at its middle is provided with a swell that serves to tighten the clasp of the larynx upon it.

(5.) The weight and length of the tube are no inconsiderable factor in its ability to oppose the force involved in coughing.

In no case of mine has a tube failed to remain in its proper position.

It is possible, and in certain cases probable, that the tube may become gradually or suddenly occluded with mucus. Inasmuch, however, as the air that circulates through the intubation cannula has usually been warmed and moistened by its passage through the nasal chambers, there is little probability, unless there be an extraordinary secretion, that the mucus will at any stage become dry, to such an extent that it will fail to yield to the current of air. If the patient breathes through the mouth and has a high temperature, especial care should be used to provide the room with abundant moisture. This may be accomplished either by the steam-atomizer, or, perhaps better, by means of a device contrived by Dr. Charles M. Whitney, and described by him in the *Boston Medical and Surgical Journal* for October 5, 1893.

In those cases in which an extraordinary secretion and flow of viscous mucus is observed, it is well to leave the thread attached to the cannula, and to caution the attendant to watch the patient closely, and upon the mani-



O'DWYER'S SHORT LARGE CALIBER TUBES.

festation of a pronounced dyspnœa, to remove the tube. For cases in which there is this loose flow of mucus, or in which there is much loose membrane in the trachea, a special tube has been devised by O'Dwyer. This tube is shorter, of larger caliber, has no retention swell, and is made in seven sizes. As it is more likely to be coughed up, the largest possible size should be used.

In five cases, I have met with this abundant secretion of mucus. In the first three cases I used the long tube, leaving the string attached and cautioning the attendant. In the third case, after the patient, a child between five and six, had been intubated two days, the lumen of the tube became occluded by mucus of so tenacious a quality that apnœa resulted, from which the child died. Upon intro-

ducing the tube I had left a string attached. The parents, either from fright or stupidity, had failed to follow my explicit directions to remove the tube upon the manifestation of any serious difficulty in breathing. In the next case of this kind I first inserted the usual tube, and after an hour changed it for a short tube, which I allowed to remain two days; no ulcerations resulted, nor was it necessary to re-insert the long tube; the child recovered. In the fifth case, I inserted without delay a short tube, which after twenty-four hours I exchanged for a long tube. The latter was allowed to remain in the larynx for two days. No ulcerations occurred. The child recovered.

I have endeavored to make clear the most important conclusions drawn from my own experience in intubation.

These conclusions and the questions of technique and practicability to which they pertain have been, and it seems to me, advisably, isolated from any account of the cases based upon a consideration of the course of the specific diseases causing the stenoses. At the expense of repeating, it should be emphasized that intubation makes no attack upon the constitutional disease. I have, therefore, presented my experience merely with regard to the success and safety with which the operation may be made to accomplish its mechanical end of relieving dyspnoea.

Inasmuch, however, as I have, since taking up intubation, resorted in no case to the other operation, some determination of the scope of my experience seems necessary.

Of the fifty intubations, forty-seven were performed for the relief of acute laryngeal stenosis in children, while three were done for the relief of chronic stenosis in adults.

First, with regard to the forty-seven children. Of these thirty were males; with the exception of two cases, their ages were all between five and seven years; of the two cases, one was an infant of one year, while the other was a boy of ten years.

In eight cases the primary lesion was confined to the larynx, the mucous membranes of the mouth, pharynx, soft palate and nasal passages remaining from the first, as far as I could judge, in a perfectly normal condition. With the treatment of these eight cases, together with one other in which the lesion was manifested first on the

tonsils, I am familiar, as they came in my own practice; they were fortunate enough to come after the advent of antitoxine; all recovered.

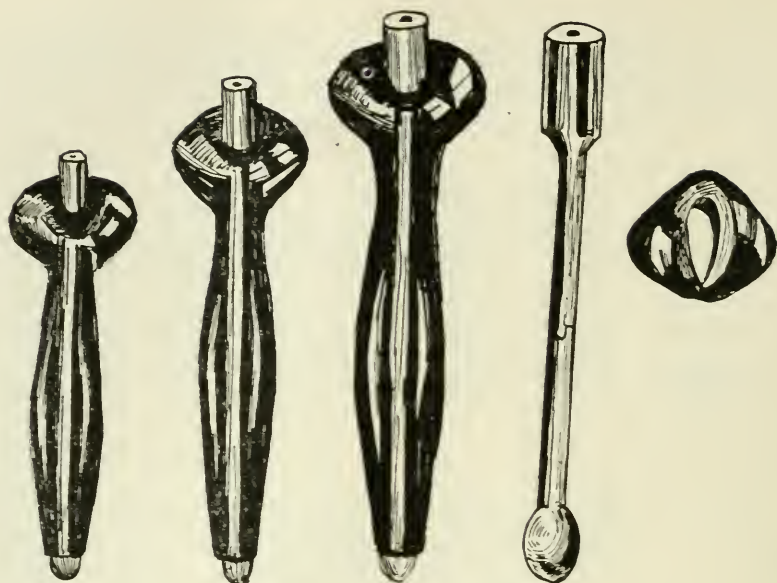
The remaining thirty-eight cases were consultation cases, in which I attended simply to the tubeage. Without doubt they were characterized by radical variations in constitutional treatment, due as well to variations in judgment on the part of the physicians in charge as to the different times at which they occurred.

In thirty-one of the thirty-eight cases, the local manifestation first appeared over the tonsils and soft palate, and thence extended to the larynx; in all but two of these cases the downward extension ceased in the larynx; in the two cases it extended from the larynx through the trachea into the ramifications of the bronchi, thereby producing broncho-pneumonia, from which both died. In three of the seven remaining cases the initial lesion was in the nasal passages, and extended thence to the adjoining mucous membranes of the pharynx and air-passages. Of the four remaining cases I have no record save that at the time of intubation the mucous membranes of the pharynx and air-passages were all invaded.

Of the twenty-eight deaths that took place among these forty-seven diphtheria cases, but one, in my judgment, can be traced either directly or indirectly to intubation. The circumstances of that case I have described.

There remain to be considered three cases of chronic stenosis in adults. In





CHRONIC STENOSIS TUBES.

two of these the stenosis was the result of the cicatrization of syphilitic ulcers: in the other case the stenosis was due to an œdema of the glottis that was a complication of Bright's disease.

In the cases of cicatricial stenosis, as no permanent improvement followed the use of the dilators of Mackenzie and Navratil, I resorted to continuous laryngeal pressure by means of O'Dwyer's probe-pointed, conical-shaped tubes. These were taken out, cleaned, and re-inserted every seven days through a period in the first case of about four months, and in the second of about three. In the first case, although the tube had been out for a year, no return of the stenosis has been

reported. In the second case an occasional re-insertion has been necessary.

It is generally supposed that in œdema of the glottis, intubation can afford but slight relief on account of the swollen tissues overlapping the head of the tube. In the single case I report, after incision of the ary-epiglottic folds, a successful and permanent relief was attained by means of a large-headed tube.

In the effort to bring the essay within the time limit, the account of these cases has been somewhat abridged.

5 ADAMS STREET,

CHARLESTOWN, MASS.

# ANNALS

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### ORIGINAL COMMUNICATIONS.

#### TWO CASES OF ACUTE INTESTINAL OBSTRUCTION FROM FOREIGN BODY WITH OPERATION.

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The subject of acute intestinal obstruction from foreign body is of great interest to the surgeon, demanding as it does prompt operative interference.

Leaving out of consideration such factors as gall stones, hardened fecal masses, etc., in the causation of intestinal obstruction from foreign body, we have left to us only those cases in which the foreign body has passed through the upper alimentary canal and finally has become lodged in the intestines.

Medical history is filled with the reports of strange substances, advertently, usually by the insane, and inadvertently introduced into the human alimentary tract, through both of its openings, the most common being plates of false teeth, coins, pins, buttons and tacks. A small proportion

of these substances enter the larynx, some lodge in the œsophagus and others in the stomach, but a fair proportion enter the small intestine, through which the body, if not too large or pointed, may pass and eventually be discharged by the rectum. Foreign bodies with sharp points or edges, however, frequently lodge in the intestines and according to their size, shape and location in the intestine give the symptoms of acute intestinal obstruction in a more or less urgent manner.

The symptoms of acute intestinal obstruction from foreign body are the general ones of that disease, moreover, except in the cases of infants and idiots, a history of having swallowed some improper articles is obtainable and occasionally also in persons with relaxed abdominal walls and where

the foreign body is of some size it can be palpated.

The treatment calls for a prompt abdominal section and removal of the body with a subsequent closure of intestinal and abdominal walls.

The two cases that came under my care during my service at the Smith Infirmary are of peculiar interest, for, in both, one an adult, the other a child, no history of a foreign body was obtainable and the operations were undertaken for the relief of the intestinal obstructions without any idea that foreign bodies had anything to do with its origin.

Case 1. Last April I was called to see Mrs. H., age 54 years, a short, stout, married woman, of German descent, and elicited the following history. Some eight years ago she was operated upon by Professor von Bergmann of Berlin, for what evidently was her first attack of intestinal obstruction due to an incarcerated umbilical hernia. She recovered from the operation, and, although the hernia recurred, enjoyed a fair state of health for a number of years.

Two years ago, she had a second attack of intestinal obstruction, and an old physician who attended her "lanced" what he called a boil which shortly after appeared on her abdominal wall just below and to the left of the umbilicus. Since that time she has had a fecal fistula whose constant discharge has been a source of much annoyance to her. Her present condition was typical of acute intestinal obstruction. Constant vomiting, severe abdominal pain located over a

large and much distended umbilical hernia, temperature 101.° F., pulse 110 and complete obstipation which had existed for the past four days.

By my advice she was at once removed to the hospital, where with the assistance of the surgical staff I opened the abdomen over the hernial protrusion, first having disinfected with pure carbolic acid the granulating opening of the fistulous tract bringing its edges together with a large clamp.

With care the incision was continued downward till the sack contents were sufficiently exposed. In the sack, adherent to its wall and to each other were the cæcum and the vermiform appendix, the ascending-transverse and descending colon, and some eight feet of small intestine firmly matted and agglutinated together by adhesions of old and recent formation. Protruding through the intestinal wall was a piece of toothpick an inch and one quarter long, evidently the cause of the fresh inflammation and resulting intestinal obstruction.

The separation of the adhesions was difficult. When finally accomplished it was thought advisable to remove the vermiform appendix as it was loosened from its mesentery. The fistulous tract in the abdominal wall and opening into the small intestine were cut out. The intestinal opening was closed by a double layer of Lembert sutures and the opening from which the toothpick protruded was treated in a similar manner.

The replacing of the intestines in the abdominal cavity was not easy as

its capacity was much reduced, owing to the amount of intestine which had lodged in the hernial sack for so many years. This accomplished, the freshened edges of the neck of the sack were brought together by kangaroo tendon. The skin sewed with silk-worm gut and the sack drained on each side.

During the operation which had lasted nearly two hours and one half, the patient received a number of stimulant injections and left the table deeply shocked and with a pulse of about one hundred and thirty. She however, rallied nicely, passing flatus per rectum in a few hours and had several large fecal movements the next day. After a slow recovery she left the hospital well. I saw her a few days ago and found her in good health, able to perform her household duties and with no recurrence of the hernia.

The second case which I have to report was that of an infant, two years old, who was admitted to the hospital with the following history: for several months past the child had attacks of crying as if in pain, and the mother, supposing them due to colic, paid but little attention to them. Suddenly the symptoms grew more urgent, the abdomen became swollen, incessant vomiting set in, and the now alarmed mother brought the child to a physician who sent him into the hospital for operation.

On examination a tense, painful tumor was noticed just to the left of the umbilicus. From this, in con-

junction with the symptoms, a diagnosis of acute intestinal obstruction, due probably to an incarcerated umbilical hernia, was made and the child was immediately operated upon. On incising over the swelling, the knife passed through a dense inflammatory exudate thrown out into the left rectus muscle, upon further incision the abdominal cavity was opened, disclosing the inflamed intestine adherent for some distance to the abdominal wall. On separating the adhesions a pine splinter about one inch long was found—one portion embedded in the abdominal wall, and the other protruding into the intestinal canal. An attempt was made to close the opening in the intestine, but failed, on account of the extreme friability of the intestinal wall due to its inflamed condition. Four inches of the damaged intestine therefore, were removed and the ends closed by means of the Murphy button.

The wound was then closed and the child was removed to the ward in a state of shock from which it never recovered, dying some four hours later.

These two cases illustrate the extreme difficulty of diagnosing obstruction from a foreign body not mechanically blocking the intestinal canal, but, nevertheless, producing obstruction by exciting destructive changes in the intestinal wall and the neighboring soft parts. Fortunately the treatment is the same as for all other forms of acute intestinal obstruction.



## A CONTRIBUTION TO THE INDICATIONS FOR AMPUTATION OF THE RECTUM THROUGH THE ABDOMEN.

BY DR. DAVID JORDAN.

VENICE, ITALY.

Excision of a cancerous organ is very unsatisfactory, if it is not accompanied by methodical removal of the infected glands that lie about it. This opinion was already known to the surgeon but its systematic application is essentially the fruit of the labors of the last ten years, at the beginning of which Durante wrote: "Unfortunately the mammary region is one of the very few, if not the only one, that permits such an operation."

(1) Then followed instruction along the line of the precept according to the exigencies of the case, in amputation of the tongue, with emptying of the submuscular and carotid regions; amputation of the external genitals followed by cleaning out of the inguinal canal, and finally removal of the uterus and excision of the glands in the internal iliac region. This manner of intervention through the abdomen for cancer of the uterus, which, by the example of Novaro, I followed for two years with very satisfactory results, although as yet I can not appreciate the remote results, suggested to me, the same method of intervention for cancer of the rectum.

(2) I open the abdomen, and amputate the rectum, taking at the same time the iliac glands and the cellular tissue of the mesentery and of the

sacral concavity, forming with the stump a gluteal anus. At about the same time, the same route was traversed in France by Gaudier, landed by Quenu, but starting from a principle less radical than mine, having been simply trying "to extend the limits of the operability of cancer of the rectum." Later, having amputated the rectum, Gaudier recommended closure of the perineum with running suture, making with the stump of the colon an iliac anus. (3) Gaudier excised 18 cm. of the rectum: a little while after Chalot announced that he had excised in the same manner 37 cm.

In my notes already cited I remarked how unfortunately Nelaton placed himself in his fear of hæmorrhage by such a difficult method, and I added, "This difficulty is not uncontrollable, one should, in a person in whom there is to be observed the greatest care in regard to hæmorrhage, try the hypogastric method—preferably with a transverse incision practicing at the same time with the removal of the glands, preventative ligature of the two internal iliac arteries." The case was not long in presenting itself.

Zago Antonia, 36 years of age, of Venezia, came into my surgical

service on the 30th day of August, 1896. There was nothing noteworthy in the family history. Some remote history, not presenting facts worthy of mention: polyarthritides at 12 years: menstruated at 14, some dysmenorrhœa, ceasing on marriage at 26, had an abortion at three months at 28. Two years ago she began to suffer pains in the colon and hypogastrium, she was cured so she says of a tape worm, which was evacuated without producing any amelioration in her condition. Since the first she has suffered habitual constipation, from the onset of the trouble has suffered frequent attacks of pain with emission of feces either liquid or ribbon shaped. For a year the evacuations have been diarrrhœal and fetid, mixed with mucus and blood, often involuntary.

She has no appetite, fearing to take food on account of aggravating her sufferings.

She entered many times, for months, the medical wards of this hospital, where medicines administered by mouth, and topically applied, accomplished nothing either in ameliorating or hindering the progress of her disease.

Personal appearance emaciated, (weight 38 Kgr.), anæmic, with no deformity of the skeletal structures: breath fetid; examination of the thorax negative. Locomotion as though very tired. Abdomen somewhat meteoric, parietes soft which permits palpation of scybali along the course of the colon. In the left iliac region a hard cylindrical mass was

found which lost itself in the pelvis. In the inguinal region glands are both seen and felt, mobile and indurated. By rectal examination, the finger comes against, immediately above the sphincter, a stenosis, caused by the noticeable thickening of the walls, knobbed, hard and bleeding toward the lumen, into which one is hardly able to pass the apex of the finger. The tumor is mobile and by bimanual examination seems to end on a level with the fornix of the vagina. From here motion is imparted to the other cylindrical mass felt in the left iliac fossa. Uterus mobile and of normal size. The adnexa on the right are enlarged and somewhat painful: bimanual examination very painful on the left. A fistula extends from immediately below the stenosis to the posterior vulvar commissure.

The perinæum and the thighs are very much soiled from the mucous sanguinolent and fetid fecal discharge. The urine passed in quantities of a litre on the average, in the 24 hours, has a S. G. 1014, is neutral or slightly alkaline, no albumen or sugar, with only 0.460 per cent. of urea. The hæmoglobin is reduced to 33 per cent.

Seeking to ameliorate such conditions, since I did not wish to perform an operation for a temporary iliac anus, which seemed the least operation, finally, rectal irrigations were prescribed, which gave no relief, by means of a Nelaton catheter: also copious milk diet, and daily hypodermic injections of the Tinct. of Iodine (5 per cent.) and the Ammonio-

citrate of iron.

After five days the patient began to make attempts at vomiting, and declared herself incapable of taking any food, even liquid: she demanded an operation even if she should die in it.

The temperature taken during these days oscillated between 36.2 and 36.8. There was no appreciable improvement in the hæmometry, finding 34 per cent of hæmoglobin; the amount of urea was increased slightly, 5.42 parts per M., with a double amount of urine secreted daily (2000-2500 cc, Sp. G. 1010). Under such conditions we proceeded to operate.

5.9.96—Narcosis under chloroform, preceded by an injection of one cgr. of morphine, one mgr. of atropine and five cgr. of the tincture of digitalis.

In the inverted position I opened the abdomen with an incision slightly curved above the pubes, separating the recti muscles. I recognised the presence of a cylindrical tumor which occupied the rectum and a part of the sigmoid flexure, with infiltrated glands, palpable only in the mesentery.

There was a muco-hæmorrhagic sac of the tube, the size of an egg, on the right, with sclerosis and adherence of the adnexa on the left upon the posterior face of the broad ligament. Practicing then salpingectomy on the right, and liberating and replacing the adnexa on the left, thus preserving it, I isolated then and tied the two internal iliac arteries, and the hæmorrhoidal in the mesentery above the dis-

eased level of the intestines, I tied at this level the sigmoid flexure with two large strands of catgut, dividing with the scissors, and dissecting from the ligature of the hæmorrhoidal the mesentery, and detaching it with its glands. Removing at the same time the pelvic cellular tissue and the contents of the sacral concavity, I opened the pouch of Douglas. As soon as the isolation in the lower end was low enough to be reached by the finger, I tamponed with gauze; had the woman placed in the sacro-dorsal position, and closing the anus with a piece of silk passed and drawn like the string on a tobacco punch, surrounding it with an elliptical incision, hastening rapidly upward the dissection in order to arrive upon the part isolated from the abdomen. The dissection was done in total anemia, and it was only necessary at this time to apply four hæmostatic forceps upon bleeding veins. Having brought down the diseased mass with the cellular tissue, which surrounded it and stuffed the surrounding wound with gauze I closed the abdomen with cross sutures, leaving in the middle a wad of iodoform gauze, which descending into the pelvis arose over the pubes. I cut off the intestine between the two bands placed upon the healthy part; and the stump was fixed to the skin with two ligatures: I removed then the ligature from the stump, inserting and fixing with a circular knot a large drainage tube, which opened far from the field of the operation. Applications to the abdomen and perineum are frequently called for. The rubber

tube which arose from the intestine descended at the foot of the bed into a receptacle which contained a solution of the permanganate of potassium.

Hypodermoclysis with a physiological saline solution at body temperature: injection of caffeine and strychnine. In the evening the pulse being high, an endovenous injection of a normal solution was made in the saphenous vein. After this the temperature stood at 37.5.

The following evening she had a maximum temperature of 37.6, for the rest of the time the temperature was always about 37. On the second day there was a minimum of urine, 500 c. c.

On the second day there was a discharge of flatus through the tube. On the third day, there being no symptoms of peritonitis, and the abdominal dressing being dry, the hypogastric gauze was removed. There was some nausea and retching, also some vomiting in the first eight days. At the end of the fourth day (8-9-96) the vomitus had the fecaloid odor already noted in the breath before the operation: for this reason I removed the rubber drainage tube from the intestine, and gave an hypodermic injection of 0.0005 of the neutral sulphate of eserine. After an hour the patient felt the pressing need of an operation which she was not able to accomplish.

The finger felt in the intestine large and hard scybali, which were dislodged by means of an injection into the bowel of warm water through an œsophageal tube. This manœuvre, little recommended but very profit-

able, with the injections of eserine was continued up to the eighth day; then after washing out the stomach, which checked the vomiting immediately, 25.00 of the tincture of cascara sagrada were administered, obtaining during the day a copious elimination of feces, hard, pulsatious, liquid, respectively black, yellow, and very fetid. After two or three days of diarrhœa, everything came about all right, and the patient began to have only one or two evacuations daily, at first pulsatious, then formed, of which she had warning but was not able to control them if the desire was not satisfied immediately.

The stitches were removed from the abdominal wound which was healed nicely on the tenth day, and on the sixteenth day the patient was up and about the ward. She ate then with great voracity the best diet conceded by the hospital, and improved in general condition and in color. (Weight 46. Kgr.; hæmometry showed an increase to 42 per cent., and the urea was 1.20 per cent.) The perineal wound between the skin and mucosa was reduced to superficial granulations a few millimeters in extent. If the incontinence persists or stenosis arises, I shall make a transplantation or a plastic cutaneous operation.

The piece of the intestine removed, measured in length 36 cm., and consisted of two parts, enlarged, waxy looking, hard and ulcerated. The lower one extended above the sphincter the height of 6 cm., and the upper one the sigmoid flexure for 15 cm.,



closing it in such a manner that one was hardly able to pass the little finger. An infiltrated column ran from one to the other under the healthy mucosa. These neoplasms showed a noteworthy hypertrophy of the muscular and connective tissue with extensive ulceration of the mucosa, which in some places had invaded the muscular coat also; on the edges a well marked glandular hyperplasia, without a typical form; a rich infiltration of round cells in the intestinal walls and in the glands of the mesentery.

From examination of the piece excised, it was apparent, as we already supposed from the clinical history, that we dealt here, not with carcinoma, but simply a proctitis badly ulcerated and causing stenosis. On the edges of the ulcerations were conditions approaching adenoma; neither the patient nor her husband presented any history of syphilitic infection, nor were any stigmata of the same present.

It would be going beyond the question, to seek to uphold the justification of this operation on the rectum for the prevention of malignant degeneration of the lesions present: very grave affections which did not permit any hope of a functional restitution of the part, demanded removal; since it was possible, I decided to excise it, promising myself a more satisfactory result from the radical cure, with formation of a perineal or gluteal anus, which the patients seem to prefer to the iliac anus, in spite of the lesser gravity of the palliative method, which demands their continual care in regard to neatness of the area of the wound.

It goes without saying that for ulcerated lesions less severe, the iliac anus is a method of election, if not of necessity, in the cure of proctitis ulcerosa. (5)

I desire by the history of this case simply to call attention to the great economy of blood that one is able to accomplish by preventive ligature of the internal iliacs, hæmorrhoidals, and for tumors situated in the concavity of the sacrum, of the sacral median, before proceeding to excision of the rectum. The patient whose history I have related, had such a lack of hæmoglobin and excretion of urea as almost to prohibit an operation, and might not have survived an excision, approached directly by the perineal or sacral methods.

Doyen has said in an access of enthusiasm after a fine operation in the vicinity of large vessels: "Hæmostasis (preventative) is an error, excusable perhaps 30 or 40 years ago. It is incompatible with the recent progress in surgery, abdominal or general." (6) More discreetly, some ought to be less generous with another's blood. Surgeons like Velpeau, Schuh, Baroni who first practised such operations in Italy, lost patients through uncontrollable hæmorrhage even on the table, in cases of excision of the rectum. Allingham, from the middle hæmorrhoidal, Novaro from the middle sacral, had hæmorrhages not inconsiderable (7); and Novaro averted that "when one wishes to do one of these operations, it is necessary to have at one's disposal, a large number of hæmostatics forceps, because the

hæmorrhage is always considerable " (8).

Rizzoli "through fear of meeting grave hæmorrhage" (9) began the operation with the knife, proceeded with the thermocautery, and finally found safety in ligature. Are not these then those to whom the country owes its idea of the fear of blood?

In amputation, it is particularly important to note a form of hæmorrhage well described by Chiarella "whoever has assisted at an operation of extirpation of rectum has seen how at every cut of the knife, there are interposed an extraordinary number of little vessels for the most part venous, which flee if we may thus speak at the sight of the surgeon, or perhaps these vessels, which the operator does not regard in another operation, in extirpation of the rectum as one proceeds higher and higher, and the operation has a certain length, are those which, producing a continuous oozing. If one does not take care to close them accurately, at the end of the operation, these given rise to a considerable loss of blood, always relatively grave, even in treating individuals not debilitated."

The saving of blood after the preventative ligature of the hypogastries is so great, that one day a colleague seeing me operate, as if in total anæmia asked me what was the effect upon the bladder after ligature of the hypogastries. The very rich anastomoses of the viscus, are such as to secure its vitality. In the present case, there was not manifested any circulatory disturbance on the part of

the bladder. There was in the first few days, some black bloody discharge from the uterus, which I had left because I had been able to save the adnexa on one side, even though they were sclerotic; I am convinced that the total removal of the female genitals before the menopause, if it is not required for vital reasons, is a bad operation. For a few months, although there are some disturbances the patients present general conditions of enviable good health but after one or two years their appearance becomes very much altered: they do not suffer any more, but they are old.

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(1) Report of the Surgical Institute of Rome, 1886. p. 27.

(2) Jordan; Recent Progress in Amputation of Cancer of the Rectum.

(Riv. Ven. Di. Sc. Med. Apr. 30, 1896. p. 378).

(3) "Treatment of Cancer of the Rectum by a New Operative Procedure.

(Sem. Med. Apr. 1m. 1896, p. 133.)

(4) Semaine Medicale, Apr. 22, 1896. p. 162.

(5) Artificial Anus as a cure for Entero Colitis Uleerosa Chronica (Orsini, in Riv. Ven. Di. Sc. Med. Sept. 30, 1896, p. 279.)

(6) Archives Prov. De. Chir. 1895, Nov. 10. p. 635.

(7) Chiarella G. B. The Extirpation of the Rectum for Cancer (Turin 1884. Page 47. extract from the Medical Gazette of Turin. Arno. 35.)

(8) Acts of the 10th Congress of the Italian Med. Ass'n. Modena. Sept. 21, 1882. p. 209

(9) Excision of a Portion of the Rectum for Fibrous Neoplasm followed by Recovery, by a Mixed Method. Knife and Thermocautery. Mem. Acc. dell'ist. Bologna Serie III T. VIII. — (1877.)

## REMARKS ON VAGINAL HYSTERECTOMY.

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Vaginal hysterectomy was a very difficult and dangerous operation when first devised, but gradually the technique has been simplified and instruments invented, so that today it can be more easily and quickly performed in the general run of cases than any other abdominal operation. The result is that the field has been enlarged, and this operation is being performed where formerly it was thought not to be indicated.

Having been obliged in the last few years to remove the uterus, by both vaginal and abdominal section, in cases which had been previously subjected to the operation of removal of the uterine appendages, and having so many cases where the ultimate benefits of abdominal section were slow to show themselves, that is to say, where menstruation, or at least hemorrhage, continued for months and years afterwards; where, especially the neurotic symptoms and the peculiar manifestation of the menopause were intensely marked; where leucorrhoeal discharge from diseased mucous membrane required constant long continued after treatment; and where patients would become discouraged and drift around from one gynecologist to another: having seen, as I said,

all these undesirable conditions following abdominal section so often, I have gradually drifted in the direction of vaginal hysterectomy, and hence, am inclined to do this operation in the following kinds of cases, some of which will not be disputed, but some might cause discussion.

1st, Uterine cancer or malignant growth in the early stages. 2nd. Bilateral pus tubes, 3rd, Chronic inflammation of the uterus and appendages, with adhesions. 4th, Retroversion of the uterus with chronic inflammation of the appendages and adhesions to the rectum, etc. 5th, Rarely, complete procidentia, which cannot be remedied by plastic operations. 6th, Extensive lacerations, degenerated mucous membrane, with unilateral pus tube near the menopause.

1. No one will deny the necessity of the operation of vaginal hysterectomy for malignant growth, especially if diagnosed early enough.

2. The operation for pus tubes is in dispute, because some claim that you cannot remove the tubes as well by vaginal section as you can by abdominal. This is not so. No one has the right to condemn the operation without having tried it faithfully, without having perfected him-

self in the technique, and it will be found that it is often a great deal easier to do it than by the abdominal section, although in rare cases the intestines might be injured, and the abdominal section must be performed to remedy such injuries. Still, those cases are very rare, and it is wonderful how easily a pus tube can be peeled out from below, where from above it seems very difficult. You get the line of cleavage, and with remarkable facility can remove the pus tubes.

3. You will find cases with repeated attacks of pelvic inflammation, often accompanied with many nervous symptoms, most severe dysmenorrhœa, and where we formerly performed an abdominal section and removed the uterine appendages.

4. Many of these cases also have a lacerated cervix and more or less procidentia. In my experience, the most rapid improvement takes place by performing vaginal hysterectomy, while by simply removing the appendages by the abdominal route, long continued after treatment is often required, even if, at the same time, we curette the uterus or sew up the laceration, etc. I, for one, have laid down for myself the following rule. If the patient is near the menopause, hence her chance of becoming pregnant is very slim, then I perform vaginal hysterectomy. If, however, it is a young woman, married only a short time, or perhaps not married at all, I perform an abdominal section, removing the diseased parts and saving whatever I possibly can, some-

times, one-half an ovary and one-half a tube. I will even go so far when there is danger of her requiring another operation at a later period, in order to save her sexual organs. This seems to me a very important part of the whole question. A woman must not be unsexed during the period of her sexual activity unless it is absolutely necessary to save her life.

5. Some old women, after the change of life, have complete procidentia, where it is impossible to keep the uterus up by various mechanical devices, and where plastic operations have failed. The uterus is large, the surface probably raw and ulcerated from constant infection, and the women are in misery. The danger being so very slight, I consider that the removal of the useless organ, which perhaps has already undergone malignant degeneration, or in the course of time will do so, is strongly indicated.

6. In cases where our examination reveals pus tubes only on one side, and we may be able to save the other side, with extensive laceration and other morbid conditions of the uterus, and where the woman is near the menopause, and has children but has no prospect of becoming pregnant again, we will bring about a more *perfect cure*, in a *shorter time* and less endangering the woman's life, by vaginal hysterectomy than we would by abdominal section and removing the one tube. Of course, this does not hold good with *young* women, which I cannot emphasize too much, and



should be clearly understood on that subject.

Before going further, I want to mention one fact, and that is, that there is a vague idea in the profession that there is something peculiar in the uterus, or in the ovaries, that contributes to the physical and mental activity of the individual. That by the removal of the organs, something is removed which should be present, something on the Brown-Sequard theories, and on the theory that thy-roid extract is administered. In the present state of my knowledge, I cannot speak on this subject at all with authority. But I know this. Women upon whom I have operated 10, 15 and more years ago, as far as I can find out, show no mental or physical defects. Young women, 20 years old, who have been operated upon for double ovariectomy, seem to be perfectly well. Women on whom I have performed vaginal hysterectomy, removing the uterus and absolutely all the uterine appendages five, six, and more years ago, are perfectly well, the pictures of good health, and they have repeatedly assured me that they feel as well, in fact, better than they ever did in their lives, and strong proof must be brought before I will change my mind on the subject. The simple assertion of somebody that removal of those organs changes a woman, mentally and physically, cannot be accepted, with the proof I have to the contrary.

Since the first of July, I have performed the operation of vaginal hysterectomy on the following cases for the conditions named. I make this state-

ment condensed simply not to worry you with the long history of every case, as the histories in these cases are so much alike.

No.	Name	Age.	Disease.	Date.
" 1	Mrs. E.	47	Pustube.	July 3
" 2	" T.	29	Chronic Inflam.	" 7.
" 3	" P.	47	Fibroid.	" 9.
" 4	" C.	38	Chronic Inflam.	" 14.
" 5	" W.	47	Cancer.	" 28.
" 6	" W.	47	Pustube.	Aug. 1.
" 7	" K.	46	Pelvic Cell. ?	" 8.
" 8	" L.	36	Cancer.	" 25.
" 9	" K.	51	Cancer.	Sept. 4.
" 10	" J.	36	Pustube.	" 23.
" 11	" T.	23	Cancer.	" 26.
" 12	" B.	40	Myoma Preg.	Oct. 2.
" 13	" B.	43	Chronic Inflam.	" 10.
" 14	" B.	27	Pustube.	" 13.
" 15	" H.	36	Pustube 15	" 20.
" 16	" I.	32	Chronic Inflam.	Dec. 4.
" 17	" L.	39	Abscess & Fibroid.	" 8.
" 18	" S.	42	Fibroid & Pustube	" 22.
" 19	" O.	40	Pustube.	" 29.

You notice that these 19 cases all recovered, and for fear that you may think I am either a magician, or lie about it, I will say that I am not always so lucky. During the first part of the year I had six deaths out of ten cases. The first three performed in 1896 died. Two of the cases from shock: they were cancer cases very far advanced, with long continued hemorrhage, and there was some question as to the propriety of an operation, but it was the only chance the poor women had — I am not operating for a record — and I removed the uterus. Two died from heart failure, within 24 hours. I suppose that is a kind of shock also. When they seem to first recover from the operation, the heart seems all right for 10 or 12 hours, and then

suddenly begins to become weaker, more rapid, and the patient dies within 12 or 24 hours after this, with a temperature of 99°, I can hardly call it sepsis or direct shock. One case died of septic peritonitis. A knuckle of intestine became adherent to the cul-de-sac, causing obstruction of the bowels, and although abdominal section was made and the intestine loosened and straightened, the septic condition continued. The sixth died suddenly the fifth or sixth day, from what I suppose was embolism.

Since then, I have had sixteen cases without a death, and these, with the nineteen, made 35 consecutive cases without a death. How soon I will get a spell of very bad cases again, of course, I cannot tell. Although I have operated for years, having a mortality of about ten per cent, I do not know whether I can operate any better than I could formerly; still, I think our technique has been much improved, and in closing, will just say a few words about it.

The former method of using a large clamp was very cumbersome and difficult. The frequency of secondary hemorrhage was well-known. The difficulty of getting at the uterus through the posterior cul-de-sac was also recognized. With the present method of encircling the cervix beyond the diseased tissue and stripping back the mucosa, and separating the bladder, we can easily get hold of the lower half of the broad ligament and with a pair of strong forceps compress the uterine artery. We can then remove the cervix as far

as the forceps extend, or split the uterus in two. As a rule if the uterus is not very large, I pull the uterus forward with a pair of tenaculum forceps, bringing it out anteriorly. The tubes and ovaries can be easily reached, as a rule with the finger and loosened, and also brought out forward. Now, with a strong forceps we grasp the upper half of the broad ligament down as far as the first forceps reach, first on one side, cutting away the uterus, and then the other side also. These two upper forceps catch the broad ligament and thoroughly control the ovarian artery. We thus have four forceps on the broad ligament, two put on from above and two from below. If the forceps do not slightly overlap, the small anastomotic branch may bleed and require the application of a small forceps. If the mucous membrane, or the vaginal edge of the incision should bleed, one or two more forceps may be required. During the operation, as soon as the peritoneum is opened, a long piece of gauze, or a good sized sponge, attached to a string, is introduced, which will prevent the intestines from coming down. When the bleeding has ceased, the parts are thoroughly flushed, gauze or sponge removed, and a strip of plain sterilized gauze, about a yard long and six inches wide, is placed in the pelvis, above the forceps, to keep the intestines away from contact with the forceps. Another piece of gauze is packed beneath the forceps and in the vagina. As a rule, another one on top of the

forceps to shove up the bladder good and high, special care being taken that the urethra is in sight, so that the patient can be readily catheterised. The forceps and packing of the vagina are left in 48 hours and then removed, but the first piece of absorbing gauze which is placed in the pelvis above the forceps, and which is to keep the intestines away, is left in. This is the principle point about the whole operation, it seems

to me. It becomes adherent to the intestines, and if you attempt to remove it at this time, you loosen and infect the intestines, cause septic peritonitis and loose your patient. That piece of gauze must be left in for a week or ten days, until it is thoroughly loosened and the intestines are firmly united above, when it can be readily removed without any trouble. The vagina should be also kept clean with carbolised douches.

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## ABSORBABLE LIGATURES AND SUTURES IN PELVIC AND ABDOMINAL SURGERY.\*

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The comparatively recent advances both in theory and technique as applied to the surgery of the abdominal and pelvic organs, is of the highest interest, and whatever will add to the safety and efficiency of such procedures is entitled to the most thoughtful consideration and painstaking scrutiny.

Among the questions which enter in as important factors is the kind and preparation of material used for ligatures and sutures.

This short study will not attempt to deal with conditions and reasons which would have weight with the surgeon in deciding for or against operative procedure. Neither will the technique be considered except inci-

dentally as related to methods of using sutures and ligatures. The necessity of both ligatures and sutures is universally recognized, and the questions as to the method of their application and the material chosen, will alone occupy our attention. Neither will the question of aseptic surgery be enforced, as it is the cardinal doctrine of every surgeon.

The qualities for an ideal suture are sterility, pliability, strength and endurance, and the same may be said of ligatures.

There may be conditions in which it is not desirable that sutures should possess the highest quality of pliability in which they act as splints to support structure while serving as sutures.

This, however, scarcely applies to intra-abdominal surgery.

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The method of applying sutures and ligatures is of prime importance. Sutures should be threaded in needles large enough, but no larger than is needful to carry the ligature or suture so that it will, as far as possible, fill the puncture made by the needle. Too much care cannot be exercised in tying sutures and ligatures. While opposing surfaces should be accurately and securely approximated, the tension should be graduated to the character of the structures included, always remembering that a suture tied too tightly is not only liable to cut itself through, but that allowance should be made for swelling of parts, which would conduce to a similar result. Probably, as a matter of fact, more sutures are tied too tightly, than too loosely. Here the skill and judgment of the surgeon is of the highest importance.

The same principle applies to the tension of running suture, as to those interrupted. Ordinarily in intra-peritoneal-surgery the structures which do not unite by primary union never unite. Whenever this is true the ligature which remains in the structures unabsorbed may act as a foreign body and prove a source of irritation and possible danger. Buried sutures of silk may become encysted, or in time absorbed, or as not infrequently happens, are the cause of inflammation, suppuration, abscesses, and sinuses—the opprobria of surgical art.

Silkworm gut, than which there is often no more reliable material for external and abdominal wall sutures, is highly objectionable for intra-pelvic

or buried sutures, for the reason that it is practically unabsorbable and its sharp ends make it doubly liable to cause irritation and perhaps serious mischief. Other considerations enter into the problem of the use of ligatures. The manner of tying should not be lost sight of. If of catgut it should never be left with a single knot, but tied a third time as softening of ends may cause untying. As I have called attention to this point in other articles, I desire to again emphasize its importance. Doubtless the untying of this material has prejudiced some surgeons against its use, supposing its giving way was due to want of proper tensile resistance. One other important property of catgut must ever be in mind—that is, if catgut is washed in alcohol and then dried at a temperature of 110° F for twenty-four hours, then re-washed in absolute alcohol and re-dried as before, all aqueous moisture is driven off.

If these are sealed in glass tubes containing absolute alcohol ready for sterilizing, it will, when opened for use, be to the highest degree hygroscopic. If, while in this state, it is introduced into living structures, and promptly tied, it will quickly absorb from the watery constituents of the blood sufficient moisture to cause it to fill the punctured space and tighten the ligature or suture. This is a property possessed by few if any other suture. It diminishes to the minimum the liability of hemorrhage or exudation from stitch-hole punctures. For plastic work and for ligatures it



has for this reason very palpable advantages.

There is, however, another objection made to catgut which must be met. It is claimed and perhaps justly so, that for some purposes it is absorbed too quickly, and does not preserve opposing surfaces in apposition for a sufficient period of time. Without entering into detail to meet this allegation, I would add—this objection is perfectly met by chromicising the material. This process will, if carried far enough, cause it to retain its strength and resist absorption for forty days: shorter life to the resistance of the gut can be obtained by a shorter period of chromicising.

Perhaps the most serious objection (which, if true is a very grave one,) is that it is impossible to make catgut absolutely sterile without impairing its tensile properties. Catgut placed in sealed tubes as already referred to and then subjected under proper pressure to 284° F. for an hour is safely and absolutely sterile, and if primarily of good quality, combines all requisite qualifications. It thus appears from the standpoint of the bacteriologist, that this question is authoratively and permanently settled.

The reason why, if possible, intraperitoneal structure and all others as well should be free from foreign bodies after operation are almost universally acknowledged and it is with hope of giving a new impetus to this thought that I appear before you to-day. Every surgeon will admit that present relief and permanent cure

is the purpose and end of his labors, and whatever contributes to that end, thereby rendering the case more hopeful, is alike worthy, not alone of his thoughtful consideration, but his conscientious adoption. Past prejudice on the ground that catgut cannot be sterilized and rendered safe, can no longer serve as a hiding place or argument to those who have for these reasons rejected it.

The experience of Dr. W. T. Bull, and his associate, Dr. Coly, in the N. Y. Hospital, as given in the "N. Y. Medical Journal" of Feby. 29, 1896, concerning the influence of buried, unabsorbable sutures in a large number of herniotomies, is certainly clear in its deduction to impress the surgeon with the risk of such procedure, and sufficient to lead him to discontinue the practice.

To my mind the introduction of buried silver wire and silk worm gut sutures in the abdominal wall after cœliotomy is not only unnecessary, but attended with a degree of risk which hardly warrants its employment. It is an admission of doubt and distrust of accepted methods in plastic surgery.

Given a case of cœliotomy in a woman liable to the function of motherhood, if silver wire or silk worm gut remain as buried sutures in the abdominal cicatrix who can predict the possible risk and the consequence of long continued pressure due to pregnancy and possibly by hydramnios. A wise method of dealing with the abdominal wound is to approximate the peritoneal and other

layers by fine running catgut sutures. After having approximated accurately the peritoneum as suggested, introduce occasional interrupted sutures of silkworm gut including fascia, muscle, and integument, to be tied as a final step in closing the abdominal wound, when the surgeon shall have completed suturing the other layers.

On proper union the only suture to be removed is the silkworm gut.

The question how long a ligature must retain its grasp to secure the ovarian and uterine arteries against the liability to hemorrhage is perhaps to some extent a matter of conjecture. Certainly long enough to allow the plug in the vessel to become thoroughly organised and fixed.

In vaginal hysterectomy by the clamp method from twenty-four to forty-eight hours are ordinarily sufficient. It would from analogy seem that three or four days are sufficient for the purpose, while the average length of time ordinary catgut is supposed to retain its constructing power is from five to ten days.

In minor plastic operations within the vagina, including the perineum, I always resort to catgut unless the tissues are subjected to tension, when catgut is reinforced by silk or silkworm gut according to the needs of the peculiar case.

In a very considerable number of trachelorophies, during the past fifteen years I have used catgut exclusively and it has been of very rare occurrence that any but perfect results have been obtained. Perhaps in 2

per cent. of the cases a single (lower) stitch has given away before union occurred. It should be mentioned that these operations were not performed until after appropriate treatment.

In intra-abdominal surgery where there is no subsequent opportunity to inspect the processes going on it is neither safe, nor fair, to assume that the liability of uncircumcised catgut giving away from tension or absorption is greater than the giving away or cutting out of sutures in delicate structures or those rendered friable by previous disease. One serious mistake of some operators is that they attempt to include too much structure in a suture or ligature, and thereby the results of work otherwise well and skilfully done is put in needless jeopardy. The application of catgut for purposes of hemastasis demands a clearly defined notion of just what is required of it. That this may be easily understood, I desire briefly to refer to the technique such as I advise in abdominal hysterectomy by supravaginal amputation. With the abdominal incision complete the field of operation is made clear by pressing up the intestines with a large flat gauze sponge, or if needful place the patient in the Trendelenbergh position, apply pressure forceps with a long bite (those known as Wight's) to both broad ligaments down to a level point of cervical amputation. This will include both the ovarian and uterine arteries. Then with a pair of blunt pointed scissors cut away on the inner aspect of both forceps the

broad ligament, and with appropriate posterior and anterior peritoneal flaps (the latter including a separation of bladder from cervix) amputate the cervix, which separates the uterus from every attachment.

In securing the blood vessels, the next step is the vital one of the whole operation. With narrow pointed compress forceps seize successively each ovarian and uterine artery (which is easily distinguished both by the open end of the vessel and its anatomical situation) pull it up through the blade of the forceps and tie it with a fine (No. 1) catgut, including in the ligature *nothing but the vessel*. Thus every vessel is easily and safely secured without transfixing the broad ligament as is usually done, which interferes to a greater or less extent with the retraction of the artery, and consequent tension, which is liable to cause the vessel to escape from the ligament and sooner or later cause secondary hemorrhage. When this is done, begin at one or the other margin of the severed broad ligament nearest the ovarian artery and with a fine running suture over and over, or over and over with a back stitch, close over the peritoneum, by which step all raw surfaces are left extra, sub-peritoneal.

The point I desire to emphasize particularly is the separate ligaturing of every blood-vessel. This step secures the artery in such a way as to reduce the risk of secondary hemorrhage to the minimum. A modification of this method will usually meet

the indication of tying blood vessels, and the use of sutures in the manifold intra-pelvic procedures.

In cases where drainage is required, (which should, if possible, be downwards into the vagina) or infection feared, chromicised catgut may take the place of the plain. Unlike plain catgut the chromicised catgut is less yielding, and less susceptible to absorption of fluid, and may if of large size require immersion in water before use.

There is, if I rightly interpret the trend of sentiment, a growing conviction that unabsorbable buried ligatures anywhere and everywhere should if possible be discarded. From disinclination, prejudice, or unwillingness to test them, many patients are being subjected to risk and danger which the circumstances of the case scarcely justify. Allusion has been made to the error of including too much structure in a ligature or suture. In the securing of large pedicles or considerable areas of oozing from the broad ligament or other divided structures, the inter-locking stitch or quilting suture relieves undue tension and adds a most valuable conservative feature to rational hemostasis. These are only a few of many considerations bearing on this interesting and fruitful topic. This is no idle tale. The lessons which bitter experience inculcates, in the disability, suffering and havoc arising from phlegmonous suppurations and sinuses, resulting from buried and intra-peritoneal sutures of silk and other material, stand ever against the comparative immunity and satisfac-

tion which comes to the surgeon who completes his operation with the conscious belief that he has left within the living structure no avoidable or needless foreign body.

The utility of kangaroo tendons has not been alluded to for the reason my experience does not justify me in

passing upon their merits. While believing that catgut or chromicised catgut will fulfill the main indications in pelvic and abdominal ligatures and suture, the use of silk is not condemned *in toto* as having a place in this important surgical procedure.

291 HANCOCK ST.

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## MEDICINES IN NORMAL LABOR.

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Whether or not medicine is needed during natural labor is a much debated subject. Objections, for various reasons, have been raised about the medical means that have been found to alleviate the suffering or hasten the delivery.

These objections will to some extent be alluded to below as the different medicines are discussed. First in my medical armament comes the subject of Antiseptics.—*Shall they be used? When? which? and how?*

As a preliminary measure in the lying-in hospital, of which I am chairman, we have a rule that at the first intimation that labor is beginning the patient is given a thorough all over hot bath with especial attention to pappillæ, mammæ, vulva, and fundament—plenty of soap and hot water thoroughly scouring these parts makes a long stride towards an aseptic delivery and puerperal period.

No chemical antiseptics begin to take the place of the above. The question of vaginal douching is determined by the individual case. If the woman has any morbid condition of the canal or vulvar orifice a plentiful douche loaded with some antiseptic is a great preventive against ophthalmic trouble in the offspring but in private practice great care must be used about the syringe, as too frequently an old affair loaded with past impurities will be offered when the call is made for a syringe. With a comparatively healthy vagina and vulva, douching is unnecessary. I have never removed the hair from the mons veneris and think such refinement is totally unnecessary. As a matter of precaution antiseptics should be used freely upon the hands of the doctor and nurse. Bichloride of mercury is the most satisfactory both as to efficiency and as to convenience of carriage.



To dismiss this subject at this time we will say that douching the vagina after delivery is very questionable practice unless there is septic trouble, when if practiced it should be thoroughly done. The least meddling with the inside of the vagina after delivery the better the chances to escape septic infection. Cleansing the external parts with hot sterilised water with carbolic acid in it is all that is really beneficial.

In malarial districts it is a wise practice to forestall labor by daily prophylactic doses of quinine for ten days or two weeks. Where this has not been done a febrile element so commonly arises subsequent to labor that it has become routine practice with me to order quinine to be taken for a number of days after labor. After labor has well started unless the pains are coming regularly, sufficient both in frequency and in force, *quinine* is a mighty power to increase their frequency and strengthen their propelling power.

In the majority of my cases I use it and can demonstrate its usefulness very easily. Where the pains are frequent but insufficient in force and duration causing the patient to complain that she has no rest and yet upon examination we find little or no advancement being made, then quinine is not indicated but a different agent which will be taken up next.

*Chloral Hydrate.*—In cases where the pains are frequent and weak, with a more or less indurated os uteri, your patient becoming] [fagged and irritable, nothing in my hands gives

such comfort as chloral hydrate.

The routinist tells us fifteen grains repeated every fifteen minutes until three are taken. Now of course the practical physician knows full well that "*What is one man's meat, is another man's poison,*" and that while forty-five grains of chloral taken within a half hour is productive only of good to the average case, where it is indicated, it would in the exceptional case, produce serious trouble.

A unique case occurred in my practice this fall. Slow progress being noted, though the pains followed each other in rapid succession and the patient rapidly becoming hysterical, with the os uteri quite rigid, in other words a typical group of signs for the use of hydrate of chloral. Fifteen grains in solution was given, but before fifteen minutes had elapsed, some slight depression being observed, the dose was not repeated. The patient became quieter, the pains less frequent, but lasting longer when they arrived. Between the pains the patient had naps lasting ten and even fifteen minutes. At the end of an hour the os uteri was found considerably relaxed, and labor progressed much more rapidly. The patient slept between pains up to the final struggle, and after she was through, and left in peace, she had a rather profound sleep lasting about seven hours. She had no disagreeable after effects. I have never before seen in the lying-in-room such profound effects from fifteen grains of chloral. In my practice in normal labor I

never see any indication for opium, or any of its derivatives. I remember hearing a professor of Obstetrics tell a class that morphine had a very useful place in the lying-in-room. Then he went on to say that if you had a society meeting on hand, or any other pleasant function, just give your patient a hypodermic of morphine, and delay proceedings until the arrival of a more convenient season. While it may, and does obtund the sensibilities, and consequently diminish the discomforts of the lying-in-period, yet the evils that go with it, and follow in its wake so overshadow it, that except in very peculiar conditions it should never be used.

*Chloroform* certainly enjoys a halloved place during the period of travail, and its boon should not be denied, except when positively contra-indicated. I have never seen any of the evils charged to it, by other practitioners, that could not be laid to the account of some other more practical cause. I have no doubt that with a tedious labor, giving chloroform during the first stage, would do harm in many cases, but except, when absolutely needed for instrumental interference, it should not be used until the second stage is well under way. I do not believe in itself it predisposes in the least toward post-partum hæmorrhage, and certainly, I have never had a case where I could positively charge it with greatly prolonging the delivery if its exhibition to the patient was not begun until late in the second stage. When used it should be administered freely so as to

take the edge off of the severe pains during the second stage, and in the tremendous struggle with the final expulsive pains, unless there is some contra-indications, the patient should be profoundly under its influence. The question of liquor often arises and has to be handled with judgment. As a rule I never give stimulant until after everything is over, on the ground that it is most needed during the reaction after the excitement natural to a travailing woman has subsided. I have heard the practice urged of forcing stimulants during labor in place of other anæsthetics. In my judgment the after effects are worse than those following chloroform, and then when the time arrives when it (liquor) is so badly needed it fails to produce the influence desired.

*Strychnia* in some extremely atonic conditions, proves of service to rally the patient during the twenty-four hours following a tedious labor. The use of *ergot* has varied greatly during the last twenty-five years. One extreme practice was to give it to every woman giving birth to a child, and the other never to exhibit it at all. The only excuse in these days for giving it in every case, is either ignorance or hurry. First the belief that every case needs it which is perfectly untenable, and secondly, the attending physician not wishing to stay by his patient's bed a reasonable time, gives a dose of *ergot* as a matter of prevention, and hurries away.

*Most cases do not need Ergot*—Of that I fear no reasonable contradiction

—Let any one that disagrees with this, study a series of cases without exhibiting *ergot* and see how well they progress. My first instructor in Midwifery, the eminent and eloquent Dr. Theophilus Parvin, used to say, that as long as child or placenta was in the uterus, *ergot* should not be given, and I thoroughly concur in this

opinion.

I believe if the cases of so called *Hour-glass Contraction*, *Difficult delivery of placenta*, *Retained placenta*, etc., should be carefully investigated it would be discovered that most of these troubles are due to the giving of *ergot*, during second or third stage of labor.

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### REVIEW OF GYNÆCOLOGY.

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#### Vaginal Versus Abdominal Section for Pus In The Pelvis.

BY WILLIAM D. HAGGARD, JR.

The treatment of pus in the pelvis has passed through several transitional periods. The old unsatisfactory vaginal puncture gave place to the abdominal era inaugurated by Tait, and practiced by his followers. The removal of pyosalpinx through the abdomen was the innovation which, under the ceaseless scrutiny of the statistician, made the field of abdominal surgery the "cloth of gold" of surgical battle grounds. Then total castration through the vagina for double pus disease by the French school, and through the abdomen by the American school, engrossed the energies of gynecological operators. These methods have reluctantly given place to modern vaginal section. I say modern advisedly, because it has an essential distinction from the old blind vaginal puncture, with the incomplete evacuation of perhaps one compartment of a multiple abscess, when it is contrasted with the free vaginal incision, careful exploration, and thorough evacuation of all pus pockets.

In its present application vaginal section constitutes the most recent acquisition to pelvic surgery, and it bids fair to revolutionize the results

in pus disease. It should also be a subject of gratulation that it is a distinctly American procedure. The assertion that the vaginal method is practiced by men who are not expert as abdominal operators is incorrect. On the contrary its employment in the pelvic inflammatory conditions has been evolved by men trained and thoroughly competent in the other operation. Peculiarly enough the men who deprecate vaginal section as a blind procedure are the very men who ignore the advantages of the Trendelenburg position in abdominal work. Surely the fingers skilled in the enucleation of pus tubes through a small incision, unaided by the eye, can work equally well in similar manœuvres *per vaginam*.

We should never forget, however, that the pathologic interpretation of pelvic inflammatory processes, now remedied in part by vaginal section, has reached its present wonderful perfection by those fearless and intrepid abdominal surgeons, who rescued the pathology of pelvic inflammation from the myths of antiquity.

In the present inquiry our motive should be, not to champion the one or the other method to the exclusion of the other, but rather to accentuate the relative worth of the would-be rival methods and to determine, if possible, the positive indications and compara-

tive merits of each. Unquestionably, the abdominal route affords facilities for visual inspection wholly wanting in the lower approach. The entire field of operation is kept under surveillance, and the attack on certain portions of the morbid masses can be made with entire confidence as to the safety of visceral integrity. Not so with the pus accumulations. If they are multiple, rupture and peritoneal soiling is inevitable, and that very circumstance is the supreme disadvantage of abdominal incision. While we have often seen the pelvis deluged with pus and no untoward symptom supervene, we have also seen patients rapidly perish within twelve hours from fulminant sepsis, the result of peritoneal contamination. Without doubt a large proportion of old pelvic abscesses contain so-called spent pus that can be spilled in the peritoneal cavity with impunity. On the other hand there is that distressingly large class of cases that with singular and classical unanimity succumb on the critical third day to overwhelming sepsis.

There is no certain way of distinguishing these cases clinically, and hence all should be regarded as virulent. This is a constant and irremediable menace. I have reported at another time a series of collected cases performed in the last year, in five metropolitan hospitals in New York and Baltimore with a mortality of 18.5 per cent. What must it be in the "unheard from precincts" and in the hands of the great unwashed? This is no reflection on the reported results of many excellent surgeons who do laparotomy with mortalities of two and three per cent. I insist that this mortality does not include consecutive sections for pus, nor has it ever done so.

Abdominal surgeons have developed and perfected a most exquisite asep-

tic technique in detail and *ensemble*. They penetrate the abdominal wall in less than a minute with lightning dispatch. They enucleate with dexterity and assured safety to bowel and bladder. Manipulation is reduced to a minimum. Irrigation is deprived of irritation by physiological salt solution. The technique of glass drainage was perfected to such a degree that we were loath to exchange it for the easier and more efficacious vaginal drainage. Methods for homologous approximation of the abdominal wound have been devised that cause it to heal with beauty and surety and with an inconsiderable number of subsequent hernie. They accomplish all this with brilliant and sovereign celerity, and yet abdominal section as a routine practice for pus in the pelvis must inevitably fall into desuetude. Of course there remain many conditions where the abdominal route offers the best means of approach, notably tubercular inflammation of the ovaries and tubes. The removal of a small unilateral pus tube, out of the true pelvis, or attached to the anterior parietes, is much easier through the upper incision: yet Polk and others advocate and practice anterior colpotomy for this condition.

The alleged limitations and difficulties of vaginal section are exaggerated. The procedure is comparatively in its infancy. Continued application will broaden and specify the limits of its utility, and increasing experience will augment our manipulative skill and perfect our operative technique.

In addition to the indications and supremacy of vaginal section for evacuating and draining pus in the pelvis, presently to be narrated, its most signal advantages have been exhibited in exploration of the pelvis for adherent adnexæ and small intrapelvic



tumors. With the exploring finger in Douglas' space an accurate diagnosis of retro-uterine tumors, inflammatory and adnexial, can be easily made, and surgical measures immediately instituted for their relief. In this connection I will refer to the practicability of inspection of the pelvic contents through the vagina with the patient in the dorso-Trendelenburg posture. (Pryor.) This is readily accomplished by retracting the posterior wall and the opening in the fornix by the long retractor of Pean and lifting the uterus upward and forward under the symphysis by the anterior trowel retractor. The intestines gravitate toward the diaphragm and are further isolated by gauze pads. The appendages if not adherent, or having been freed, gravitate into the exposed area, where any appropriate conservative procedure can be applied under guidance of the eye. I have also seen the appendix through the vagina, and the possibility of treating pelvic abscess of appendicular origin through the vagina has been proposed.

It is unnecessary to suggest the ease with which pus is reached through the vagina. It is the natural approach and logical drainage avenue of the pelvis and its contents. The natural history of pelvic pus accumulations is to become walled off above from the abdominal cavity. Opening and clearing out of these accumulations is virtually extraperitoneal. It may then be classed in the category of minor surgery, but it gives major results. There is absolutely no shock. Patients thus treated give no more solitude than a plastic case, and convalesce as smoothly as from a curetting. The entire absence of risk warrants us in urging a patient to have it done. And about all patients so approached will give their ready consent. This is a very practical

phase, and we cannot ignore the prejudice and possible refusal of patients, especially in private practice, to submit to more formidable operations.

We can change methods, but we can not change the patient. Apart from these theoretical and general considerations is their practical employment. The application of methods to individual cases should be the determining factor here as elsewhere in surgery. We are too prone to make cases fit methods. In patients ill from prolonged sepsis, damaged kidneys demand short anesthesia: Anemia and asthenia preclude complete surgery, and simple vaginal section with drainage is elevated to the dignity of a life-saving procedure.

I would enumerate the special indications for vaginal section, aside from explorative purposes, in the three following classes of cases:

1. Early cases of acute suppurating salpingitis.
2. Incipient post-puerperal peritonitis.
3. Large pyosalpinx and true pelvic abscess.

In the first class will be found the cases from recent gonorrhœa and from septic abortion. As illustrative of the first type, I will mention the case of a girl nineteen years of age, who came to my clinic last summer with a fluctuating, tender mass in the left side. She had had gonorrhœa a month, and presented herself with considerable pain and afternoon temperature. I curetted her in a hovel and made a posterior section. Upon incising the peritoneum the usual small quantity of free serum escaped. I found the tube fluctuating and tense. The right side was absolutely clear. I deliberately punctured the distended tube with scissors and withdrew them opened. A quantity of clear serum gushed forth, followed at the last by

a minute quantity of pus and blood that could be easily seen as it trickled over the blade of the depressor. The cavity was irrigated with saline solution and packed lightly with iodoform gauze. The peritoneal opening was occluded with a small roll of the same material which just entered it and filled the vagina. All gauze was removed on the third day. The peritoneal cavity had been entirely closed by lymph coagulum above the occlusive dressing. The sac cavity was reirrigated and packed every second day. On the seventh day her temperature and pulse rose for the first time, and examination revealed a tender mass on the right side. On the eighth day I made another section above and to the right of the previous one and found a "hydrosalpinx," in the descriptive rather than the pathological sense, which was in every way similar to the other one. I believe those serous effusions in the fallopian tubes were the preceding pathological conditions to pyosalpinx.

If this be true, and is the embryonal history of suppurating salpingitis in early gonorrhea and other inflammatory processes, the prophylactic value of vaginal section will be the greatest boon yet given to infected woman.

In incipient post-puerperal peritonitis Henrotin has taught us a simple lesson of pregnant truth. Associated with clearing and disinfection of the septic uterus, vaginal section with drainage anticipates pelvic peritonitis and adhesions following puerperal infection. In these cases, at autopsies, I have seen literally puddles of pus in the cul-de-sac. The extension of the septic process and pus production was so rapid that nature had not time to encapsulate it. In this and in the ordinary adhesion cases of puerperal suppurative peritonitis it would be rash in the extreme

to incur the dangers of suprapubic section, where the simpler, more rational vaginal evacuation with uterine disinfection and drainage has every thing in its favor.

Opening of large pelvic abscesses *per vaginam* needs no espousal of mine. It is nature's safest method, and was the practice of our elder criterions. I have seen the venerable Emmet evacuate large abscesses and drain them by a permanent tube fixed into the vaginal incision by silver sutures. He told me he had done it in selected cases for over thirty years. It was then, as now, the operation of choice. While it must be regarded in most old cases as temporary and undertaken for the relief of immediately dangerous symptoms, there still are many permanent cures. A case has been reported of incision of an ovarian abscess with subsequent pregnancy, the other ovary having been previously removed. There are doubtless many similar cases at least of restored functional activity in an ovary previously the seat of suppuration. Such reflections should make us chary of ruthlessly condemning appendages, especially ovarian abscess. "No organ, whose function can be maintained should be sacrificed."

Should simple pus-letting not effect a cure, subsequent operation for removal of the relics of previous ravages can be done at another session without the dangers incurred in the presence of pus. This is the chorus of our contention.

In old recurring puriform disease, where both adnexæ are so hopelessly destroyed as to demand extirpation, I believe the uterus should also be removed. In such cases the condition of the patient forms the only contra-indication for complete ablation. Not simply because it is a functionless organ and can be removed with low mortality, but because it too is dis-

eased, and if left will continue to produce pain and prolong the disturbances of the artificial menopause: it may still be the seat of hemorrhagic discharge, may be infected or reinfected with gonorrhœa, harbor tubercular bacilli and other germs and incubate cancer cells. In destructive bilateral suppurative disease of the appendages the uterus is enlarged by plastic exudation, may be infiltrated with pus or permeated with latent gonococci. The adhesions binding it in vicious malpositions are intensified, after the removal of the purulent extension processes, by readhesion of hollow viscera to denuded areas on the uterine wall.

Whenever the uterus is diseased by pyogenic infection beginning in its own cavity and extending and destroying the function and integrity of its appendages it should be removed. The suprapubic operation is preferable

to the suprapubic for the same reasons that vaginal section is preferable to abdominal section for pus in the pelvis. Moreover, it has been demonstrated that "whatever can be enucleated through the abdominal wall can also be removed through the vagina, and whatever it is impossible to enucleate through the vagina can not be removed by the abdominal method, except at the price of procedures incomparably more grave and more laborious."

The field of vaginal section is to prevent suppuration in early cases: to anticipate it in puerperal cases, and to save life in desperate pus cases. It is simple, surgical, and safe. Its application to the pelvic inflammatory diseases of women and to pus in the pelvis is one of the greatest surgical triumphs of the age.—*American Practitioner and News*, Nov. 28, 1896.

## BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to DR. C. G. CUMSTON, 871 Beacon St., Boston.)

THE X-RAY OR PHOTOGRAPHY OF THE INVISIBLE AND ITS VALUE IN SURGERY. By WILLIAM J. MORTON, M.D., Professor of Diseases of the Mind and Nervous System and Electro-Therapeutics in the New York Post Graduate Medical School and Hospital, etc. Written in collaboration with Edwin W. Hammer, Electrical Engineer. American Technical Book Co., New York, 1896. Paper, 50 cents.

This book, timely and authoritative in its appearance and sufficiently complete in its details begins with simply stated definitions, explanations and

descriptions. With this ground work to start on, the author tells what has been accomplished practically as a help to surgery and proves his statements by a fine set of radiographs which the publishers have faithfully reproduced.

THE PHYSICIAN'S VISITING LIST, 1897—98. (LINSLEY & BLAKISTON'S). Forty-sixth year of its publication. Philadelphia: P. Blakiston Son & Co.

25 patients per week.	\$1.00
50 " " "	\$1.25

Complete, compact, simple, this comes as an old and tried friend.

We detect but one change in it and that a slight one, the addresses of Nurses having been given a couple of pages by themselves. If you do not carry it in your pocket you have not the best thing in that line.

**AUTOSCOPY OF THE LARYNX AND THE TRACHEA.** (Direct examination without mirror.) By ALFRED KIRSTEIN, M. D., Berlin. Authorized Translation (altered, enlarged, and revised by the author) by MAX THORNER, A.M., M.D., Cincinnati, O., Professor of Clinical Laryngology and Otology, Cincinnati College of Medicine and Surgery. With Twelve Illustrations. Extra Cloth, 75 cents, net. The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street, Philadelphia. The book gives a description of an instrument devised by Kirstein, and the technique employed. A few pages of notes have been added by the translator.

The weekly issue of *The Living Age*, bearing the date Feb. 13, is the Monthly Supplement number, and including the supplement, contains 96 pages. Among its most striking features are "All Soul's Eve in Lower Brittany," a delightful sketch of the customs and folk-lore of the Breton peasants, translated for *The Living Age* from the French of Anatole le Braz; the first part of "The Land of Suspense," Mrs. Oliphant's latest story of the seen and unseen: a passage from Mrs. Steel's stirring story of the great mutiny, "On the Face of the Waters; Herbert Spencer on 'The Fallacies of Socialism';" a discussion of "Political Ideals and Realities in Spain," by Emilio Castelar,

translated for *The Living Age*; and a paper by W. Tolman Hunt on "Religion and Art."

THE LARYNGOSCOPE, published in St. Louis, has been selected as the official organ, for the year 1897, of the Laryngological Section of the New York Academy of Medicine. This selection, and the great probability of of the same journal being chosen by other Laryngological, Rhinological and Otological Societies as their official organ, would indicate that THE LARYNGOSCOPE has become what its proprietors stated they intended to make it, *i. e.*, The American Journal of Record for the specialties represented.

**KEEP YOUR MOUTH SHUT.** A Popular Treatise on Mouth Breathing, its Causes, Effects and Treatment, by FRED. A. A. SMITH M.D. C. M. Boston. Roberts Brothers.

Every physician is conversant with the effects of this baneful habit, but few of us have studied out its causes, or know much of the proper treatment either prophylactic or curative.

Dr. Smith's position as Surgeon to the Chiltingham (Eng.) Eye, Ear and Throat Infirmary, peculiarly fits him to write on this subject.

An appendix contains some well written suggestions on the treatment of Ophthalmia Neonatorum together with a lecture by Dr. Swan M. Burnett of Washington D.C. on the same subject.

**TWO HEALTH-SEEKERS IN SOUTHERN CALIFORNIA.** By WILLIAM A. EDWARDS M.D. and BEATRICE HARRADEN. Philadelphia, J. B. Lippincott Company. Price \$1.00. Southern California is coming more



and more prominently before the public both professional and lay as a health resort. We are continually asked our advice. This volume, daintily gotten up and carefully written, aims to present the plain facts with regard to the climate and country, together with some suggestions as to diseases which may be helped, and expenses which must be incurred. Both of the authors have apparently, in their eight and two years residence, respectively, found health and strength in "the glorious climate of California." We commend the book to the thoughtful reading of all medical men.

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"AS A MATTER OF COURSE" and  
 "POWER THROUGH REPOSE" by  
 ANNIE PAYSON CALL. Boston,—  
 Robert Brothers. 1896. Price  
 \$1.00 each.

These two little volumes contain an abundance of sound common sense.

The author urges with much skill and persuasiveness the possibility of so training the body as to escape the nervous irritation which we know causes so much of physical disease. As physicians we recognize this condition of over strain present in our every day life and we often spend hours trying to persuade our patients to take the needed rest and recreation.

These volumes furnish in attractive form fresh materials for such prolonged advice and may even themselves be often placed in the hands of patients. We expect that the author will ere many months favor us with an article applying these ideas directly to the training of children.

ory to the Philanthropic and Educational Societies, and Institutions and to the Churches of the City of New York. Seventh Edition. Published by the Charity Organization Society of the City of New York. 1897.

This volume of 500 pages gives in brief an account of the institutions indicated. Physicians are continually puzzled to know just what to do with cases which cannot be properly treated at their homes. A hospital or temporary home is needed. All such will find the book of great value. A careful classification and complete index makes all the information available. The accurate information with just enough of details, renders it possible to arrange promptly by mail plans which might otherwise take weeks or months.

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EATING AND DRINKING. The Alkalinity of the Blood, the Test of Food and Drink in Health and Disease. By ALBERT HARRIS HOY, M.D. A. C. McClurg and Company, Chicago, 1896. Price \$1.50

As the title indicates, this book is an argument for the maintenance of the alkalinity of the blood. To acidity of the blood as shown by an acid Urine, he attributes a large share of human ills. And he believes that the proper condition should be maintained not by medicines but by a suitable regulation of the diet. Each of the components of our common diet is discussed in turn and its exact relation to the human economy determined. We confess that the conclusions reached are sometimes startling and not yet agreed upon by physiologists and pathologists. But on the whole the book is decidedly prac-

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cal and useful. Whether we agree entirely or not, we shall all be helped by careful reading of it.

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**HOW TO FEED CHILDREN.** A Manual for Mothers, Nurses and Physicians. By LOUISE E. HOGAN. J. B. Lippincott Company, Philadelphia, 1896. Price \$1.00.

This little volume seems to us one to be heartily commended. The writer does not undertake to state new or startling discoveries and freely credits her authorities quoting at large from Rotch, Jacobi, Adams, and others. Valuable points from the larger works on children's diseases have been selected and arranged, and are presented in the words of one who has had much experience. It is a book which physicians will be glad to place in the hands of mothers and nurses, confident that it counsels nothing rash or cranky but on the contrary, presents the latest teachings of scientific dietetics.

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**HOW TO TAKE CARE OF THE EYES,** with advice to Parents and Teachers in regard to the Management of the Eyes of Children by Henry C. Angell, M. D., Boston. Roberts Brothers.

The purpose of this little handbook is indicated in the sub-title. General practitioners will find it of no little value. The teachings are simple and practical and very frequently occurs the advice to consult a specialist early in the course of the form of disease under consideration.

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**SWEDISH MOVEMENTS OR MEDICAL GYMNASTICS.** By DR. T. J. HARTELIUS, Director of the Central Gymnastic Institute of Stockholm, Sweden. Translated by A. B.

Olsen, M. D., Modern Medicine Publishing Co. Battle Creek, Mich., 1896. Price \$1.50

The term "Swedish Movements" has been for many years becoming increasingly familiar to our professional ears. But exact knowledge of what, how and why have been wanting to most of us. It has remained for Dr. Olsen to translate and Dr. Kellogg to publish this volume which in the original is the text book of the Central Institute, Stockholm and the handbook of Swedish physicians. Hence it will be received as a welcome authority and guide.

Dr. Hartelius does not claim that these movements will prove a cure-all.

But we think most people will be startled at the number of diseases which he does claim may be greatly helped. Careful examination will however show we think that they may all be classified among those directly affecting the muscles or directly affected by the circulation. Manifestly exercise will greatly influence the flow of the blood to all parts and particular exercise will influence the flow in one part more than in others. Equally plain is it that the manipulations of stroking, clapping, beating, pulling, etc will directly affect the parts treated. The large number (95) of illustrations make the work practical and the text easily applicable to specific cases. The second part suggests prescriptions of exercise which may prove beneficial in disease of various kinds. The index is complete and accurate.

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**THE DISEASES OF INFANCY AND CHILDHOOD,** for the use of Students and Practitioners of Medicine. By J. EMMET HOLT, A.M. M.D. Professor of Diseases of Children in the New York Polyclinic. Attend-

ing Physician to the Nursery, and Child's and the Babies' Hospitals New York. Consulting Physician to the New York Infant Asylum, and to the Hospital for the Ruptured and Crippled, with two hundred and four illustrations including seven colored plates. New York. D. Appleton and Company, 1897, Price \$ 6.00.

It is with great pleasure that we commend this book to the profession. Dr. Holt's wide spread reputation as a pediatricist, pathologist and physician, make any criticism on our part quite superfluous. We might merely say that the book is in every way a credit to its authors and publishers.

We will however give a brief analysis of its important features, hoping that thereby the profession may be led to a closer scrutiny of what is a real step forward, in the study of children's diseases.

We are glad to note that Dr. Holt has given us so largely of that which his is peculiar possession, namely the pathology of children's diseases. As he rightly says, "such knowledge is absolutely indispensable to the correct understanding of these diseases clinically." The drawings and photographs of pathological specimens and sections, add much to his clear concise style of writing. There is an abundant reproduction of Temperature charts and numerous striking tabular views.

The colored plates show: mortality of children in New York, a meningeal hæmorrhage in the newly born, the relative value of infant foods, acute pleuro-pneumonia, the blood in leucæmia and pernicious anaemia, the diphtheretic membrane, and acute meningitis complicating pluro-pneumonia. They are beautifully drawn and colored, and worthy of the other-

wise high scientific tone of the book.

The arrangement of the subjects seems a sensible and practical one.

The first 66 pages is introductory, and treats of general topics, such as hygiene, care, growth and development of children, and the peculiarities of the diseases affecting them. A short section on the diseases of the newly-born, is followed by one much more exhaustive on the questions of nutrition, feeding, dietary etc.

Then beginning at the lips the various diseases affecting the different portions of the digestive canal are each in turn carefully considered. The respiratory system the circulatory system, the uro-genital system, and the nervous system follow one another in order. You will readily see how valuable must be the pathological information in each one of these lines.

The diseases of the blood, which have been recognized and studied very few years are discussed as fully as our scientific knowledge allows. Just here the colored plate is of decided service in furnishing the general practitioner palpable evidence of the real nature of some diseases known to him only by their clinical signs and symptoms.

The discussion of the contagious and infectious diseases is up to date and satisfactory. Diphtheria is of course the one treated at most length and the serum treatment is strongly advocated. Local treatment he considers of value only as a means of cleanliness. Stimulants are deemed a necessity in most cases after the third or fourth day.

The writer does not attempt a complete presentation of all these diseases, not strictly peculiar to children. But the ways in which they appear among children are well brought out and the subjects themselves considered in ample detail.





Printed light  
to show  
hole of entry  
←

Bullet in Brain

Bullet in Brain  
Same photo  
printed darker to show  
bullet  
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# DEPARTMENT OF PÆDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

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## ORIGINAL COMMUNICATIONS.

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### A CASE OF BULLET IN THE LEFT HEMISPHERE OF THE BRAIN, SHOWN BY SKIAGRAPH.

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BY JAMES BELL, M.D., OF MONTREAL.

*Surgeon to the Royal Victoria Hospital, Consulting Surgeon to the Montreal General Hospital, and Professor of Clinical Surgery in McGill University, Montreal.*

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A. H. H., female Aet. 4 1-2 years, while playing in her father's bedroom with younger children on the morning of January 19th, 1894, climbed up on a chair and reaching far back upon the top of a bureau, grabbed a loaded 22 calibre, English "Bulldog" revolver. She slipped and came down precipitately, with the weapon in her hand, with the result that one barrel was discharged and the bullet entered her forehead over the centre of the left orbit and rather less than halfway from the margin of the orbit to the edge of the hairy scalp. She did not lose consciousness nor show any signs of special suffering. Physicians were called who chloroformed the child and examined the wound. Finding that the bullet had entered the brain, she was sent to the General Hospital, when I saw her soon after her admission. At one o'clock p.m. she was again chloroformed, the head shaved and the parts prepared for

operation. On incising and retracting the soft parts, a circular opening from 6 to 8 m.m. in diameter, was found in the frontal bone. Some depressed fragments of bone and blood clots were picked out and the opening in the membranes became visible. The wounds, in both bone and membranes, were slightly enlarged and a Seims forceps introduced. Four fragments of bone were removed from the brain substance—one of them from a depth of an inch and a quarter from the dura-mater. Some dark blood clots and brain detritus escaped alongside of the forceps. Having cleared the wound in this way the forceps was pushed, very gently, along, and struck the bullet at a depth of about two inches. One or two attempts were made to open the blades of the forceps and grasp the bullet, but as it seemed to recede at each attempt they were abandoned and no further efforts made to re-

move it. A small glass drainage tube was inserted, to a depth of about an inch, into the brain substance. The patient suffered no ill effects from the operation and made a rapid and uninterrupted recovery. A smaller and shorter glass drainage tube, which was substituted for the original one on the 22nd of January, was finally removed on the 5th of February and the patient was discharged, with the wound completely healed on the 26th of February. I have seen this child

and her parents on several occasions since her discharge from the Hospital and I am assured that she has never suffered from headache nor any other symptoms. She was always a bright child but her parents consider her even brighter than before her accident. In August 1896, she was skiagraphed by Professor Callender of McGill University, who has kindly furnished me with the accompanying reprints.

MONTREAL, CANADA.

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### THE MEDICAL MAN IN THE CHILD EDUCATION OF TODAY.\*

BY W. H. PRESCOTT, M.D.

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When the secretary of the committee wrote asking me to write a paper upon the above mentioned subject, I felt I would be obliged to decline for want of time in which to prepare a suitable paper, but, as he was very explicit in his statement that he wished me to confine my remarks to those upon "today" and not encroach upon "yesterday" or "tomorrow" I decided to accept the kind invitation.

It will be very hard to describe the medical man in the education of today without trespassing upon the future or the past; for if I should attempt to describe the position taken by the average man it would be of the past I must deal—if of the ideal, it would be of the future—and so I must limit myself to a description of

those things which I have seen, in which some medical man is interested today, even if I thus make something of an ideal and so trench upon the future.

Somebody has said that the training of a child should begin "two years before it is born" and Dr. Holmes said "with its grandmother," and one part of a physician's duty is to make the parents understand that healthy bodies and minds are a pre-requisite in order to have healthy well trained children.

Can anyone doubt the wisdom of such advice when on every hand are seen fathers and mothers begetting children when they themselves are ill and not qualified to care even for themselves? Do any of you doubt the evil effect upon the nervous temperament of the child when the mother and father are always bickering and

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\* Read at the meeting of the Norfolk District Medical Society, Jan. 26, 1897.

quarrelling or drinking? And only a little better is the constant excitement in which many live. I believe it a duty for us to impress upon our patients the necessity for "right living and right thinking" during the months preceding an expected birth in order that the child may be born with a sound mind and a strong body.

After the birth of the child its training should begin immediately, despite the sneers of the old nurses—for not only is the baby helped but everyone else has more time for house, hold and other duties. A baby should be fed at regular times and between feedings should never be disturbed except for the necessary attentions. In saying this however, I do not believe in changing the methods in the house for the baby, for it is not necessary; there is nothing more trying than a "Do not make a noise; you will wake the baby" motto in a house. But I do most earnestly protest against the fondlings and tossings and caressings which so many babies have to endure.

Dr. C. Fayette Taylor in an article read before the Odontological Society in New York, March 18, 1879, and entitled "Emotional Prodigality" says: "Children are literally made to become little actors, but their fond relatives are not content with an hour or two a day which is considered sufficient for adult actors, but they are kept going from morning until night. And what is it all for? simply that these same fond relatives may gratify their love and their desire for emotional excitement."

All this excitement is bad for the baby on account of forcing into prominence the emotions and stirring the nervous temperament, but also and especially, the corollary—the baby is deprived of its natural sleep. For the first few months at least, a baby is like (or should be) a little animal, content to eat and sleep, and if trained or allowed to be what it would be, will be happy so to do.

Therefore I say, leave the baby alone. What if it cries? A certain amount of crying is good, yes, necessary for it. A muscle is increased by use and so is the capacity of the lungs.

This period of non-interference will vary in length depending a good deal upon how early the plan of non-interference is entered upon and how thoroughly it is carried out, and also upon the baby and family.

In the second period a baby should still be kept as quiet as possible during the greater part of the time but an hour or so a day can be given to healthy exercise, this may be taken at a regular time in a comfortable room without clothes.

One of the dangers to the health of the children of today is their overdressing, as an illustration I know of one little girl who, up to a few months ago was wearing four thicknesses of Jaeger underclothes over her chest. Do you wonder she was continually having colds or that after a change was made that she had no more?

I do not agree with some prominent physicians that a child needs almost no protection, but believe that as a



general statement you can say there is more danger today from over-dressing than from under-dressing. However in that regard each child should be a law unto itself. Our New England climate makes strong constitutions but kills a good many in so doing. Why is it the baby should wear heavy underclothing in our houses in winter any more than out of doors the greater part of the warm weather, for are not the majority of houses, or rather, the living rooms kept at 70° F., or over?

Then comes the period when the baby is beginning to creep and to walk, and our advice will be sought as to whether the child should be allowed to walk, what it may eat, when it may go out, etc. Perhaps in this period the physician will be more employed in the child education of the mother than in that referable more especially to the child. ♦But during this time (as always) especial attention should be paid to the care of the nose, mouth and teeth. Too little thought is given to this subject, for although the care of the teeth should be in charge of a dentist, still, a physician can do a good deal toward keeping a mouth clean and the teeth good, the nose free. This may also prevent disease.

After a child has entered school and started upon his school education (and this is the part of his life to which especial reference is made in the title of the paper), a physician's advice is of the utmost importance, the necessity of which is more understood today than ever before.

It is not many years ago since there was no one who took any interest in the conditions under which a child's work at school was performed, and this was true although the time in school is the growing time, when the frame is being formed or moulded. This needs only to be mentioned in this company to be appreciated. Fifteen years ago an investigation was started in Boston in regard to the seats in the Public Schools, and it was found that there were a few sizes of desks and seats and each child was supposed to accommodate him or herself to the desk to which he or she was assigned. A very interesting account of the condition of things may be found in the report made by Dr. Charles L. Scudder to the School Committee of Boston and published by the Committee in '83. It was definitely shown that the seating of the children in the schools was accomplished without any reference to the size of the child, but simply with reference to its age and standing. There were numerous cases found where a child's legs were too long to put under the desk without cramping or twisting. Of course in such cases the back and chest were in very bad position with danger to the child's health and growth.

Although this is true it is a comment upon the time necessary to get any change made in the schools to say that no definite solution has yet made, although the medical fraternity have tried to push the matter as fast as possible. Then the physicians advice is sought with reference to the heating, ventilation, etc., of the schools,

and in spite of this the condition of the schools in Boston in this respect, is far from satisfactory and in many cases almost criminal. Indeed a committee, formed at the request of the Alumnae of the colleges, who investigated this matter, reported that things in many cases were as bad as they could be.

The lighting of the rooms, and the color of the ceilings are points upon which the physician may be consulted.

Dr. Myles Standish has recently published a monograph on "Light," in which, after commenting upon the lack of care in regard to the paint selected for a school, he says that several children were brought to him because of trouble with the eyes due to the glare from the walls. The children were removed from the school and recovered promptly.

After a change had been made in the color of the paint they returned to the same room and had no further trouble.

Another point to which our attention may be directed is the composition of the paint on the walls. Arsenical poisoning is said to be a Boston fad and is said to be a cause for smiling when mentioned, so I speak with hesitation, but I know of a case where a boy was ill, arsenic was found in his urine and the cause found in the paint in the school room. When kept away from the school the arsenic disappeared and he recovered.

We now come to the most important part of the subject. The effect of the schools have upon the spread of

contagious diseases and the part the physician takes in the efforts to prevent that spread. In this part of the paper I shall describe as briefly as possible what has been (and is being) done in Boston.

And I wish to express here my high appreciation of the ability shown by Dr. Durgin in his efforts in this direction and to thank him for data furnished.

That contagious diseases are increased by the close contact between children possible in the schools is shown in a table published by the Boston Board of Health.

This table contains all the cases of diphtheria reported in Boston for eighteen years arranged by months. I will simply give the totals.

Jan. 2958, March 2252, May 2185, July 1573, Sept. 1840, Feb. 2391, April 2074, June 2185, Aug. 1509, Oct. 2915, Nov. 3415, Dec. 3593.

This shows a variation of over 2000 cases reported in a month. The lowest month being in the summer vacation.

It was easier to feel sure that the schools were a source of danger than to find a suitable remedy. The first attempt was made in '82 when the Board of Health sent a communication to the School Board recommending that all school houses and school furniture be disinfected once in two weeks.

This proposition was rejected by the schoolboard for three reasons — hardship to the janitor, expense, and because it might not effectually stay the spread of the diseases.

Early in '94 it was recommended

that the desks, chairs, window-sills, door knobs and every thing else likely to be handled by the children should be carefully rubbed with cloths wet with corrosive 1-1000 and the floors covered with sawdust wet with the same solution and then swept while wet.

It was also recommended that the use of all slates, slate-pencils and sponges for slate use be discontinued, paper and lead pencils being substituted and that any book known to have been handled by a child suffering with a contagious disease should be immediately burned.

The school committee adopted these recommendations in part Dec. 11, '94,

In Dec., 1890, the Board of Health recommended daily medical inspection of schools but it was not until the fall of '94 that the plan was put into operation.

The city was divided into 50 districts giving an average of four school houses and 1400 pupils to each district. The fifty physicians were appointed and granted a salary of \$200 a year.

Their duties consist, in brief, of visiting each school in their district every day and seeing those children whom the master wishes them to see, to make a record of their diagnosis and advice in a book kept for the purpose, to see every case of diphtheria and scarlet fever in the district and report to the Board of Health as to the isolation, and when a child who has been ill with diphtheria or scarlet fever is reported by the attending physician

to be ready for release from isolation to make an official visit to sanction that release.

This is the outline of the work but of course there are many little things to be thought of and to be cared for by all concerned.

In the first place the cooperation of the teachers and masters is of primary importance. In practice they have all been anxious to help especially after the benefits of the scheme were understood or appreciated. It is not supposed that the men see every case which has or may have some disease but any child who is noted as not being up to mark is sent to the physician. After a while in my district at least the children would speak to the teachers and ask to see the doctor. In some rooms there was a tendency to make an excuse to see the doctor for the diversion, but that was not common and could be controlled. If the child is very ill the teacher is advised to send him home with a note to the parents advising a physician. If he has a contagious disease he is ordered home and the Board of Health notified.

In order to avoid criticism as to contagion being carried from one child to another by a tongue depressor Dr. Durgin had a large quantity of pieces of wood made in the shape of plant-labels, each one to be used only once and then burned or otherwise destroyed.

Of course the inspector never gives treatment to any case except he may take a speck of dirt out of an eye. To show the need of this inspection

the following facts and figures are given.

Between Nov. 1, '94 and Oct. 31, '96, the number of children seen was 23,207 of whom 16,571 were found to be ill and 5818 ill enough to be sent home.

514 were suffering from infectious diseases, viz.—

Diphtheria 90, Scarletina 35, Pertussis 100, Mumps 65, Congenital syphilis 13, Chicken Pox 43, Influenza 2, and tuberculosis 2.

With regard to their work in overseeing the isolation, little need be said. There were many bugaboos raised against it but it seems to work well in practice. Still it cannot be more than a small help until every child whose isolation is not approved is sent immediately to the hospital or the house taken for quarantine.

My conclusions are:—

Begin now to train the children of

tomorrow by educating their parents and grandparents (to be).

As soon as a child is born begin its personal training and follow it up as long as it remains under your care or within the reach of your influence.

Take interest in everything pertaining to the child, throw your influence on the side of progress in the better development of the school and its studies—have an oversight upon the condition of the school—look after the condition of the special senses of the child and if necessary have the advice of a specialist.

These things and many more are being done by men today so that I have kept to the part assigned to me but when they are done by all, then our ideal will be their "today" and they will have to strive after another ideal which will be described by Dr. Channing.

285 MARLBORO STREET.

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## THE RELATION OF THE MEDICAL PROFESSION TO SCHOOL EDUCATION.\*

BY WALTER CHANNING, M.D.

The hold of tradition on the human mind has a most marked illustration in school education. Though the child is better understood physically and mentally than he was fifty years ago, and his needs are more apparent and methods of instruction have vastly improved, we still retain much that is antiquated, as well as useless, and even pernicious. While we have

some idea of what should be done, we seem to lack the capacity of practically applying our knowledge.

In a recent article, "How shall the child be taught," † Dr. J. M. Rice has shown that by a process of exclusion about fifty per cent of the time spent on the three R's might, without detriment, be given up to other subjects, under the

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\*Read at the meeting of the Norfolk District Medical Society, Jan., 26, 1897.

† *Forum*, January, 1897.



present school systems he argues, a great deal of time is wasted in the endeavor to teach the child details of subjects which can be of no practical value. For instance nearly one-fifth of the time in some of the schools is devoted to spelling and penmanship, which is probably in excess of what is required. The trouble is that no satisfactory standard of what the child actually needs to fit him for life has as yet been determined. There is no sufficient differentiation of what may be primary, and what of secondary importance. It is theoretically believed that the primary school curriculum may be broadened without detriment to the three R's, but how is this to be accomplished?

The conservatism, bred of tradition and antiquated custom, which so hampers progress on the literary side of education, has up to the present time even more impeded development on the physical side. Can it with truth be said that it has ever received the careful study and attention that it deserves? Is there such a thing as a general system of education which includes a comprehensive and practicable plan of physical training? The Kindergarten, as projected by Froebel, certainly had such an aim in view, and the educational gymnastics of the Swedes have also been a valuable contribution to the subject, but can we say that the latter have been assimilated, correlated and made part of the frame-work of the education of our children?

As far as my own judgment goes,

I should be obliged to answer in the negative, and say they have not.

I do not deny that physical training has forced itself for consideration on the attention of the community, and in the form of out-door sports, and athletics has had an important influence on the health and well-being of the people, and it must be further admitted that the schools themselves have from the outside been favorably reacted upon, and are visibly affected by the inflowing tide, and take a deep, active, and intelligent interest in these things. I might go still a step further, and admit that set gymnastics are not now as important in some schools as they might have been twenty-five years ago, for the very reason that children now receive a vastly greater amount of physical training outside the school than formerly. This is a subject of interest however which I will not consider here. Making due allowance for these facts it is still true that the physical side of education receives comparatively little attention, and is little understood.

If we seek for a reason we are led to the conclusion that public opinion is not as yet alive to its importance, and if we seek for a reason for this ignorance, I fear we must acknowledge that we as physicians are largely responsible for it.

I hold it to be true that in matters of health physicians must be the teachers of the people, but if we are ignorant ourselves, how can we be teachers?

I regard it then as our first duty

and at the present time perhaps our most important one, to investigate the subject of the *influence of education on health*. First we must know what a healthy child is. We should establish a standard of health at different ages demonstrable by measurements and tests, and not leave this matter to be half determined by lay teachers in colleges and gymnasiums. Having established such standards, we should next make similar ones for defective children, so that in the end we might be able to classify and grade them.

It will not be enough for us to say "that is not a healthy child," we must be able to prove it by rules, which, though simple and plain, will be accurate and capable of demonstration.

At first sight the problem may seem too difficult; surely we cannot become specialists in child-study, we are not psychologists. But this is not necessary, nor is the method of collective statistics or laboratory experiment the best one for our purpose.

Let us take the child as we find him and study him *clinically*, so to speak. Note physical characteristics, peculiarities, defects, and gradually draw deductions from such facts as we find. A striking example of what can be done by pursuing such a course is furnished by Dr. Francis Warner, London. He found that nervous children presented certain rather uniform indications of their condition, such as imperfect nutrition, bodily defects, and particularly "nervous signs," as he called them, such as

over-aching, or under-aching muscles, feeble coördination imperfect eyesight and so on. He decided to examine London school children for these indications and has given us the results in 100,000 children. There was nothing difficult or complicated in his method, and any one of us might use it—and it was rapid as well as accurate. His results however were important, as they showed that there was a considerable number of defective children in the London schools, and they have led to the establishment of "special classes" for the education of such children. While we may not be able to achieve equally brilliant results, we can follow in his footsteps, and at least get a more definite knowledge of what the child is in plain, simple, medical terms.

It is a defect in the medical education of the present day that the whole time of the student is spent in first overloading his mind with a knowledge of elementary subjects far too detailed and minute, and then secondly in counter-balancing this knowledge with an infinity of pathological and clinical minutiae. Each set may have a value in its proper place, but it represents a part only, and not a whole, and leaves a vast gap in the student's mind as to the *relative value and relation of health to disease*.

Less time should be spent on the details and more on giving comprehensive and broad and philosophic views of the human being as he is actually met with. To know him when sick, it will be of infinite advantage to have a standard of health to

compare him with.

I would not recommend taking *more* time for the purposes which I indicate, but make a different use of *some* of it.

There should be a course in simple anthropometry, which would enable the student to make a record of bodily and mental conditions in healthy individuals, in this way calling his attention to various organic, or functional defects which now escape his notice. Elaboration would not be desirable, but rather a fundamental training for systematic observation. Were such courses given as the one I here indicate, I am sure that one result would be a better knowledge of physical training. For with an understanding of the organism as a whole, would come a search for remedial or corrective measures, which would develop or modify its action, as a whole.

When we consider how little the medical men actually know of the muscular, mental or nervous mechanism as an apparatus which can be operated as a unit, and made strong and powerful for the struggle for existence, how can we expect him to understand much about the practical application of physical training? He is very much like a man who tries to sail a ship, who has been told how one is built and what all her parts are, and what should be done in case of accident, but has never been taught practical seamanship or seen a vessel at sea under sail in all kinds of weather. No one would think of trusting such a man to actually sail a

ship, until he has learned by observation and experience how the ship as a whole acts and must be managed.

What is true of anthropometry, if we choose to apply this phrase for our purpose, as the study of bodily conditions in the healthy individual, is also true of general hygiene, sanitation, and so on. There should be also in these subjects, special courses in our medical schools for the purpose of awakening interest and training medical men for a better understanding of the conditions under which the community lives.

Assuming that the period finally arrives, when the medical profession have acquired as a part of their education some knowledge of the essentials of hygiene, sanitation and of physical training, that word being used in its broadest sense as meaning the care and development of the entire organism, how will they be able to apply what they have learned to the schools?

This question must be answered by saying, that while they have been learning what a healthy child is, and how he can be kept so, they have also been trying to find out what influence the school exerts on the health of the child, and if it is bad, what can be done to modify it.

To find this out requires a knowledge of school education, and here again we are obliged to confess physicians have little, and often no idea of what modern school education really is. We often think we understand it, because we have once been school children ourselves, but that

means hardly more than that we have a childish conception, or misconception, of its effect on one solitary individual. Experience at such an age is not quite the same teacher as later, when the mind can weigh and judge objectively, and without the prejudice and narrowness of its subjective side. It is pretty hard for a horse to realize why he must carry a burden, even if it is hay and grain for his own consumption, and so the child, laden down with his burden of studies and rules, can hardly be expected to appreciate the ultimate benefits which may result.

If we wish to learn what the underlying principles of education are, and how they can best be applied, we must bring ourselves into touch with those who carry on the schools, the teachers themselves — and not only that: we must visit the schools, and see them in operation. It may sound a little affected to say so, but I really believe every medical student would make a better physician, if he had to visit, under the direction of a teacher, as a part of his medical course, perhaps half a dozen schools. In this way he would be stimulated to enquire a little more closely into the true meaning of education, than he is at present in the habit of doing.

We tend to segregation of professions too much. What we need is harmonious coöperation, or correlation of interests; mutual dependence: a nearer and consequently more intelligent insight into each other's work. We shall never learn by shutting our eyes.

Having reached a point when we know *what a healthy child is*, and *how he can be kept so*, and what *a school is*, we shall be competent to decide: 1st. to what kind of a school, if any, the child shall go: 2nd. how he shall be graded when he gets there: and 3rd. what shall be done to keep him healthy.

To determine the first question will be no easy matter, for it includes a knowledge of proper school sites, size and arrangement of buildings, school desks, ventilation, plumbing and sanitary science in general. Perhaps such things will necessarily fall into the hands of experts, but I believe some idea of them is requisite for a physician who is to have any direction or oversight of the health of school children, or even to pronounce opinions on these matters.

The second question, of grading should be entirely in the hands of medical men, as far as physical condition is concerned, and Dr. Warner, already referred to, has shown how this can readily be done. It is of the utmost importance that we should be able to promptly recognize and differentiate dull, apathetic, feeble-minded, nervous children, from those that are bright well and strong, and I believe that this is an obligation from which none of us can escape.

The third question, of keeping the child healthy in the school, is too far reaching to go into in a few words like these. The recognition of contagious or infectious diseases: diseases of the lungs, skin, and so on, I will merely allude to in passing, as



already they have occupied much attention. The problems of physical training are many, and not easy of solution, and will require years of patient study. As I have already intimated, physical training must mean the intelligent care and development of every portion of the organism. Gymnastics, only as yet imperfectly understood, and often poorly taught, while capable of accomplishing great results, are merely one side of the all round, general training to be sought after. Athletics and sports, in their ethical as well as in their physical aspects require most careful investigation. Who can tell us the nature and value of exercise? What are the physiological indications for exercise, and what the contra-indications? How does muscular work effect the brain, and how does mental work? Are pupils actually doing too much work in the schools or too little? Are two school sessions better than one? Are children dressed properly? How long can they go without food? What is the physiological effect of manual training?

Such are a few of the problems in this one direction of physical training, which it appears to me medical men are in the near future bound to take up and study in a plain common-sense way.

Education is the corner-stone upon which the success of the community rests, but health is of even greater importance, for it is the very rock-bottom underneath the corner-stone. Looked at broadly, education is something vastly greater than mind cultivation; it is the very sap of the tree which influences the growth of every individual fibre. To us as physicians is entrusted the health of the people, and the time is not far distant, when we shall feel ourselves equally responsible with our educators for what the schools stand for, for in them we shall find our best opportunities for combatting transmitted tendencies and defects, which, in these modern days, environment tends to transform into actual potentialities of deterioration, if not degeneration.

BROOKLINE, MASS.

## MEDICAL GYMNASTICS, A PART OF THE NORMAL GYMNASTIC TRAINING.\*

BY ELIZABETH T. GRAY, M.D.

According to the old time idea, gymnastics was athletic exercise for the preservation and promotion of health; nowadays we must add also, the restoration of abnormal conditions

from disease to health.

As early as Plato, gymnastics was made a part of medicine, for the purpose of counteracting the bad effects of luxury and indolence. The athlete and the person possessed of physical culture keep up their exercise in order

\* Read before the Boston Society for the Advancement of Physical Education at its Annual Meeting, Jan. 14, 1896.

that the present degree of physical health shall not wane; the person of fairly good health practices gymnastics that he may attain to a higher degree of physical health, while the person who is ill turns to gymnastics as an agent that will restore the body to its former degree of usefulness and strength. All are working for the same end, the bettering of their physical conditions or the maintenance thereof. Within the last decade gymnastics has come to be considered by the medical profession, and by a large number of the thinking laity, a remedial measure, to be used as a prophylactic, a corrective or a curative agent.

The old idea that gymnastics is for the healthy *only* is dying, but dying hard in some cases; and I think a large share of the credit for this more advanced standard should be given to the orthopaedic surgeons, who are so largely using gymnastics therapeutically in their department of medical work.

Greece had a very perfect system of gymnastics. It was with them a sort of worship of the beautiful, in as much as by it was realized gracefulness, and physical freedom of the body. At first Rome followed in the footsteps of the Grecians, but as one of the symptoms of her degeneration, gymnastic practice became confined to the military class and the professional athlete. Later the fathers of the church received with displeasure any approach to the athletic games of their pagan ancestors, and the women of this, and preceding generations are

reaping the harvest sowed by our progenitors, with utter disregard of the physical needs of the body.

It is only within a comparatively few years that the teacher of athletics, later gymnastics, was supposed to know anything about the body and its functions, with its possibilities and limitations.

The modern revival of gymnastics, took place in the first quarter of this century, and was due to the work of the Swedes, Germans and French; and today in Sweden applicants for a diploma entitling them to obtain an appointment in the Public School, and without which they cannot practise gymnastics in that kingdom, are obliged to attend lectures at the Royal Central Gymnastic Institute, and pass examinations not only in Anatomy and Physiology, but also in Pathology and Hygiene. Many of our schools and colleges, recognize the importance of a physical examination as well as a mental, before the matriculation of a student. For in the development of the human powers, those of the physical body must precede all others: as upon the development of the physical powers depends in a large degree the rounded, broad development of the mental and moral nature. More and more of the graduates from our gymnasias, are called upon to take charge of the physical training in these institutions.

How many of the pupils are in perfect health? Hence the necessity that the teacher should have not only a practical knowledge of Anatomy and Physiology, but also of Pathology, in

order that she may recognize any deviation from the normal condition. Not only must she recognize this departure from the perfect physical standard; but she must be so trained in the corrective and curative exercises that she can intelligently and correctly, apply the measure for the lack she finds.

The want of physical training is felt in "all classes and conditions of men," yet as the female needs it more than the male so the weakly need it more than the strong.

Few gymnasias have a Medical Director, so the graduate must be competent to examine her pupils and so skilled that she will readily recognize the slight forms of deformities that very frequently present themselves, many times the pupils being previously unconscious of their lack of symmetry. Slight forms of lateral curvature are often recognized first by the examiner in the gymnasium. Weak, flabby abdominal muscles with their train of attendant evils, *e.g.*, constipation, pelvic disorders, etc., etc., should come within the diagnostic scope of the director of the gymnasium. She should know the anatomy of lateral curvature and be able to determine, by simple measures, the degree of deformity, the probable presence or absence of rotation and be able to apply those exercises that tend toward the removal of the seolioses. Hemorrhoids is another lesion that will be often met with, for does not one authority state that "hemorrhoids are as common as colds in the head?" She should have some

knowledge of the etiology of this trouble and be able to intelligently apply the special treatment for the constipation or the sluggish livers that are so often curative factors. As disorders of the catamenia form so large a part of the burden of ill health borne by young girls, gymnastic graduates, especially the women graduates, should have a good practical idea of what constitutes catamenial troubles. They should realize that anæmia, bad posture, errors in dress, sedentary habits, are as often the cause of amenorrhœa and dysmenorrhœa as any organic lesion. Let them understand that displacements are caused by a laxness of the ligaments and tissues of the internal organs, usually a part of the general systemic lack of tone, and amenable as it is to correctly applied exercise.

Let them appreciate that healthy well-developed abdominal muscles are more efficacious for the proper performance of the intestinal functions than all the drugs in the pharmacopœa, and if these muscles are weak and incapable let them not only be able to give suitable active exercises, but also to apply the passive procedures for this class of disorders.

I think most teachers realize that respiratory exercises form a very important part of the daily table, but do they know how much a preventive of disease they are, and how, in many forms of lung disorders, notably pleurisies and emphysemas, a suitable use of respiratory exercise will act as a palliative if not a curative remedy?

Some pupils will be on the verge of

neurasthenia, if not always neurasthenies. Such cannot be treated as healthy individuals in their physical work: a wise choice of exercise to fit their abnormal condition is necessary. I do not claim that a teacher of gymnastics should be able or should attempt to diagnose and then treat diseased conditions; that is the physicians province, but she ought to recognize a departure from the normal standard and after the diagnosis has been made by competent authority, treat understandingly by special procedures.

The question might be asked, "why not send these cases to a specialist in medical gymnastics?" The specialist is as apt to be as one-sided in his training as the teacher. His studies have been largely directed to the passive procedure.

The laws of gymnastics as applied to the healthy organism, are as much a sealed book to him as the medical procedure to the ordinary gymnastic graduate. Thus, many of the minor ailments, truly the starting point of the severer lesions, escape the notice of the parent and the family physician, to be recognized first by the competent teacher. The services of the medical gymnast are valued at so high a rate, that many with these slight lesions can afford to enter a class in gymnastics, that could ill afford the expense of the specialist. The teacher has principally to do with humanity in its transitory stage, from boyhood and girlhood to manhood and womanhood. Now is the time of special danger, and now is the time to

overcome the threatened evil, or be overcome by it.

It is not too much to state that in a class of boys and girls ranging from 15 to 18 years of age, nearly one half has some special weakness to guard; this exercise must be made easier or omitted for one; the quantity of another exercise increased for another pupil, and still another must have some special form of correction or curative exercise given. If the director has only a knowledge of the body and its functions in health, how will this demand be met? A physician said to me a while ago, "I should never send a patient or anybody in whom I am interested to a gymnasium which has not a medical head." This feeling should not be encouraged. In many cases the *medical* head would be far inferior to the gymnast. A lamentable ignorance prevails among the majority of the medical fraternity regarding the kinesiology of physical exercise.

How many know what it means to make out a well balanced table of exercises for a lesson; consulting the needs of the individual as well as of the class as a whole; seeing that the progression from exercise to exercise as well as from lesson to lesson is correct, not only theoretically but practically for the individual class *and for the individual pupil*.

I should like to put in a plea that graduates from gymnasias be taught something of the physical diagnosis of the chest and lungs. This may seem extreme to many and I realize the difficulties.



Usually with the first day of teaching comes the cry from this or that pupil, "I can't run, because my heart troubles me," "I can't jump, I can't vault, I can't play the games because they make my heart beat so rapidly." Many a pupil has been deprived of these necessary parts of the daily table, needlessly; and as many teachers could have been spared causeless anxiety if they had had sufficient training in the heart sounds to have diagnosed a tachycardia due merely to nervous excitement. Let normal pupils in their senior year study the heart sounds, so that when they hear a murmur they will recognize that something is wrong here, and that higher authority should be consulted before any exercise is taken, and not deprive all complain-

ants of the parts they dread and which are so important a part of the whole.

As the teacher of gymnastics is becoming, or rather has become, a necessity, we must prepare her for a higher degree of usefulness. The educational as well as the intellectual requirements for the matriculants must be made more stringent. Let the curriculum contain the same essentials of today, to which shall be added a general knowledge of the gross pathology of disease with the most marked objective symptoms; and especially let the pupil be trained in the therapeutic application of both passive and active medico-gymnastic procedures.

312 WARREN ST.,

ROXBURY MASS.

## SOCIETY REPORTS.

### Hartford District Medical Society.

*January 26th, 1897.*

W. S. EVERETT, President.

THE MEDICAL MAN IN THE CHILD'S EDUCATION OF TODAY, Paper read on this subject by Dr. W. H. Prescott. See page 354.

THE RELATION OF THE MEDICAL PROFESSION TO THE CHILD'S EDUCATION OF THE FUTURE, Paper read on this subject by Dr. Walter Channing. See page 359

DR. E. M. HARTWELL in opening the discussion, said—

I am always glad of an opportunity to speak upon the health of school children, and especially among medical men when such interest is maintained as has been shown to-night by the writers we have listened to. These papers suggest many questions as to the relation of the medical man to education, and as to his part in shaping and influencing it, so

that it shall be a truly edifying process. We may ask ourselves why matters are so unsatisfactory at present, and also what steps may be necessary or desirable for medical men to take, to bring about a better condition of things. I think it may be fairly said that the managers of public education, the world over, have been thrown upon the defensive in the last thirty years, because they have not paid due regard to the teachings

of medicine and hygiene as to the nature and requirements of school children. The most significant fact for us is that educational authorities have been put upon the defensive chiefly through the criticism of leaders in the medical profession. More lines of improvement in school hygiene, as for instance the better lighting, ventilation, and furnishing school rooms, have been marked out by men devoted to the teaching or practice of medicine. Now more than ever it seems to me it is the duty of medical men to know and to make known what their brethren have done in different parts of the world for the benefit of the school population. Enough has been accomplished to disclose the most important points of the attack. We have ground for satisfaction, as Dr. Prescott's paper bears witness, that through the action of the Boston Health Board and School Committee, medical men have been called in in this neighborhood, to protect the public health from the menace constituted by large numbers of children gathered under conditions which are demonstrably favorable to the spread of infectious diseases. The number of physicians interested in other phases of the school-health question, such as have been suggested by Dr. Channing, is happily increasing, and it is possible to instance cases in which their investigations have been influential, *e.g.*, the investigation of Dr. Scudder concerning school desks. I am convinced that the physician who will interest himself in school affairs is going to be listened to more and more. There is a growing feeling in the public mind that the schools are not managed with an eye single to the capital fact that school children are the growing young of the human species, and as such require to be placed under helpful and healthful conditions

if their faculties are to be developed fully and in their entirety. One reason why the kind of physical education that Dr. Channing pleads for, has such a hard time in making its way within the jurisdiction of school managers, is to be found in the traditional views used by our olden educationists, as a class, with regard to the nature of education and the proper lines of controlling and managing it. The physician of today, looks upon the human being as presenting an intimate mixture of mental and bodily faculties, impossible to be dissociated from one another, except in thought, on this side of the grave, and is ready to demand that the training and education of the young, shall be fairly divided between what we call the mind, and what we call the spirit, and what we call the body.

The modern doctrine of the human body is based on two great conceptions: One, that it is a physical mechanism for doing work, its smooth working we call health, its disturbed working, disease, and its stoppage, death; the other is that it is an animal mechanism, and as such is the product of organic evolution, and in its development from egg to maturity, is subject to the laws of organic development. According to this view the problems of education are problems in development in evolution: and the wisest and most successful educator will be he who most clearly apprehends Nature's laws of development, and most closely conforms his procedures to them. It is because education has been too largely ordered and controlled in the past by men unacquainted with or averse to the teachings of science in regard to the nature and needs of the children of men, that health is so little considered in the management of our schools, and physical education is so generally neglected or misunderstood.

The progress of education is still hampered by the traditional view that mind and body are not truly independent, and by the long received assumption, that literary studies are necessarily humanizing, and scientific studies are scarcely worthy of a place in a liberal education. The education of these has been so long in the hands of churchmen and their instructors and disciples, that it is far more difficult to convince educationists that mental health and development are dependent upon healthful growth and development of the bodily organs. They are naturally disinclined to admit that procedure, whose aim is to promote the normal growth and due discipline of the body, are worthy to be dignified in the term educational. They forget the history of education. The time was when the study of mathematics was forbidden by the church, because geometry was used in divination and sorcery; the time was when the student of Greek was called *ille Gracculus* which was tantamount to being called a heretic. But times have changed, and the time is coming when the modern view of man and his origin and the importance and significance of the development changes through which he passes from embryo to foetus, from foetus to child, from child to youth, and youth to adult will be taken into account not only by physicians and scientists, but by educationists as well. An interesting question is with regard to the parental education of the infant. We cannot altogether control the development of the child from the time of conception until birth, but there is reason to believe that pre-natal conditions are sufficiently within control, to make it worth while for the physician to attempt to help nature out along that line. Let us consider the vital statistics of the Norwegians, who are a

homogeneous and hardy people, and one of the healthiest races in Europe. It is interesting to note that even under such favorable conditions as obtained in Norway, about one per cent of the children born alive, die on the day they are born, and about ten per cent of the children born alive die before they are twelve months old. Even among them the risk of dying within a twelve month is never so great as during the first twelve months of life, until about the age of 80 years. Probably many lives might be saved at birth, if physicians saw their way clearly to controlling the conditions which precede birth.

Right there the question of sex arises. According to the Norwegian mortality tables, to which I have alluded, out of 100,000 born in a given day 1,080 will die within twenty-four hours, while out of 100,000 females born in a given day 821 will die within twenty-four hours. Among the still-born the males also outnumber the females as a rule. In general female death-rates are lower than those of males, as is shown by the greater per cent of females in each generation who reach an advanced age.

Not only are girls better adapted to the environment of the world into which they are born than are boys. (judging from their mortality and morbidity rates), but they are more precocious in their development. They get their teeth sooner; they begin to walk and to talk earlier; and they attain to their full growth, and sexual maturity earlier than boys. It seems to me reasonable to say, that as a class, girls are in point of growth and development both bodily and mental, from one to two years ahead of boys of the same age, during the school period extending from the kindergarten to the high school.

These considerations suggest mighty



questions, and among them the question of co-education and identical education of the sexes.

This, and kindred questions, including possibly the question whether it is a good thing for public education that nine-tenths of the teachers should be women—will hardly be settled till they have been considered and pronounced upon by the medical profession. The laws of development and their bearing upon the measures and conditions incident to school-life, will have to be enunciated and expounded by the medical profession, before the general and educational public shall arrive at a realizing sense of the reforms that are requisite to make education natural, safe and effectual.

MR. S. T. DUTTON, Supt. of Schools for Brookline said:

It means much for the cause of education that physicians are studying such problems as have been discussed this evening and are taking an active interest in the welfare of the schools. I can wish for nothing better than that all the members of this organization become actively interested in the subject of education, both in its theory and its practice. At the present moment all over the country educational men and women are very much alive to the need of improvement in educational methods from the physical standpoint. No doubt there are many who are entirely blind to the needs of the case. Teachers are everywhere looking for the better thing and are working for it with such light as they have.

Dr. Channing spoke of the need of co-operation, and a very good reason for co-operation was given by Dr. Hartwell when he spoke of the "unity of development" from the physical, intellectual and spiritual points of view. There can be only one kind of life that is best, and the physician,

the teacher and the clergyman are all interested in ministering to that life. When this is universally recognized it will be possible for the teacher, the doctor and the minister to sit down together and consider how all the forces that operate in the education of the child may be made to work in perfect harmony. It is to be regretted that there has been so little co-operation in the past, but with this larger conception of what education is we may hope to see the representatives of all social and educational forces working together. I am naturally optimistic and feel hopeful. I believe that the coming years are to see great changes.

It is good to think of Dr. Hartwell as being in Boston guiding the forces there and I have no doubt that the school authorities are amenable to advice. It would be well if Dr. Hartwell would give the School Board of Boston the same plain advice that he has given us this evening. It might help toward the working out of the right thing.

Permit me to say just one word about the school curriculum. It is to be regretted that individual people generally do not understand the importance of broadening and enriching our courses of study. I met a member of the Boston School Committee last evening who said,—"I am losing confidence in experts. They all wish to push a specialty. One persuades us to put in manual training, another physical culture, another music and another art, and so on, until the child's time is broken up and he comes up to the High School with no power to grasp any single subject." I should be sorry to have those present think that the result of enriching our courses of study is mental degeneration. The results in Brookline show the contrary. Our pupils are showing an increased capacity for do-



ing hard work and for grappling with difficult subjects, and our course of study is as full perhaps as any in this neighborhood.

It makes a vast difference what the purpose and the motives of teaching are, and the test should always be to ascertain whether children are doing their work cheerfully and under the right physical conditions. These considerations have much to do with health and success. The child who comes to school happy and goes home happy is much more likely to be a healthy child than the one who dislikes his school and shirks his task.

No one can help to disseminate sound ideas along these lines so well as the physician, and, as I said before, I am glad he is turning his attention in this direction.

Nearly one-quarter of the total population of the United States is at present subject to the conditions of school-life, or in other words is engaged in the sedentary occupation of attending school. Of our school population, over 96 per cent is found in elementary schools, and about 18 per cent is found in cities. In Massachusetts the majority of public school children, are already found in city schools. If, as is generally held, urban conditions at their best are less favorable than rural conditions for rearing full grown vigorous healthy children, the physician of the future will have an important part to play in minimizing the untoward effects of city and school-life upon the rising generation. It is high time for us to face the facts, and to seek a remedy for conditions that call for amendment. That the children of school age in Boston should have a higher death rate, not only than children of the same years in London and Berlin, but also in Philadelphia and New York is not a consolatory fact.

The action of the Boston Board of Health, (to which Dr. Prescott has called attention) in appointing a board of medical inspectors to make daily visits to the schools, bears witness to the fact that the guardians of the public health are alive to the necessity of limiting the spread of infectious diseases among school-children: and it is significant that the New York City Board of Health has recently appointed a staff of medical inspectors numbering 150. These are clearly steps in the right direction, for inasmuch as the public schools are organized and maintained by the state, the state owes it to itself to take active measures to prevent the school population from contributing unduly to the spread of epidemic diseases.

But is it not also the duty of the State—especially where attendance at school is compelled by law as in this commonwealth—to provide school houses so placed, arranged, and furnished, that their occupants, both teachers and pupils, shall not be subjected to unsanitary influences or allowed to engage in hygienic procedures in prosecuting their work? To secure these ends it hardly seems to me sufficient that officers of the board of health should seek merely to prevent the spread of school diseases. Why not give the board of health or some other ward of medical and sanitary experts a voice in the selection of school sites, and the approval of plans for the drainage, plumbing, heating, lighting, and ventilation of school houses—instead of waiting for their opinion till it is suspected that scholars and teachers are suffering in consequence of the blunders of architects or builders?

Suppose the public health is safeguarded, and that school buildings and school rooms are planned, built, and furnished in conformity with the

rules of sanitary engineering, even then there will be need of specially trained inspectors or directors of school hygiene, whose business it should be to see that teachers and janitors should conform to such reasonable rules as may be laid down (in respect to the hygiene of the school—of the class-room, and of the school child) by public health officials, sanitary experts, and school authorities acting together. The teachers should be made thoroughly conversant during their professional training with the hygiene of instruction, and be regular to conform to its principles in all practices and procedures which effect the eyes, ears, brains and muscles of their pupils.

I am perfectly well aware that to organize thorough and adequate medical inspection, and hygienic oversight

of schools, such as I have suggested, has not been as yet attempted, and is indeed impossible at the present juncture in any American city. But if the medical profession shall become satisfied that there is need of such measures—and will take to heart the lessons of European experience—which is already considerable and highly instructive—and urge those teachings upon the public, and upon the managers of our universities, medical schools, and technical institutes (none of which offer either practical or theoretical courses in school hygiene worthy of the name), the medical profession will be simply performing a duty which it owes to itself and the community, which properly looks to it for guidance in matters pertaining to hygiene in all its branches.



**Philadelphia Pædiatric Society.***January 12, 1897.*

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J. P. CROZIER GRIFFITH, M.D., President.

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DR. FREDRICK A. PACKARD presented a patient with dilatation of the stomach. DR. PACKARD said:

I have not as yet quite finished the study of this case, and felt some hesitancy in presenting it, but the boy shows so finely the outline of the large, dilated stomach, probably entirely of congenital origin, that I thought it worth while to bring him to the meeting. He is fourteen years old and goes to school. There is no family history or previous history bearing upon his condition. His mother says that since he was one year old his abdomen has been extremely large, particularly in the upper zone. About the condition of the abdomen at an earlier age than that, the mother can tell me nothing. The boy complained chiefly of dyspepsia, occasional vomiting with a large amount of vomitus, occasional attacks of diarrhoea with offensive movements and during the past summer a fleeting attack of jaundice, which I think had nothing whatever to do with his main trouble with the stomach. He is much bothered by shortness of the breath on exertion. There has been at no time any sign of

any growth pressing upon the pyloric orifice of the stomach and I take it that the case is probably one of congenital dilatation of that organ. The enormous dimensions of the stomach can be seen not only by the outline marked on the surface, but by the great anterior projection of the upper zone of the abdomen. By combined auscultation and percussion the stomach is readily outlined as being one of extremely large size, reaching from the lower border of the third rib to the umbilical level in the left vertical nipple line and extending posteriorly to the posterior axillary line. As nearly as could be determined the pylorus lies in the right vertical nipple line. The heart is considerably dislocated, the apex being under the third rib. The heart itself is normal. No other abnormality is found on physical examination.

My first thought on seeing him was that it might be a case of congenitally dilated colon, somewhat like the specimen removed by Dr. Formad, which is at present in the Mutter Museum. Auscultation and percussion show it to be entirely independent of the transverse colon, while

the symptoms are gastric rather than intestinal. On one occasion when he came to the Out Patient Department of the Pennsylvania Hospital, at 11 A. M. we gave him a seidlitz powder in portions and there was absolutely no difference in the stomach tympany at the time. Suddenly at 5 o'clock that afternoon the boy complained to his mother that he was faint, became pale and complained of fullness in his stomach. The mother states that the abdomen was distinctly more swollen than usual, the fullness being almost entirely confined to the upper portion of the abdomen. We have never been able to see peristaltic waves, even when we tried electricity and the external application of cold to the abdomen. The test of absorptive power by the administration of potassium iodide and testing the saliva with starch paper, and the examination as to motor power by salol showed that neither of these departed from the normal. The surer test of these functions by the use of the stomach tube in the early morning could not be practised owing to the fact that the boy lives at a remote and rather inaccessible part of the city.

The treatment adopted has produced quite decided improvement in his symptoms and possibly in the size of the organ. His diet has been carefully regulated, a bitter tonic with sodium bicarbonate has been given before meals, and he has had two sésances each week with a strong, slowly interrupted faradic current. The use of the button electrode within the stomach has not been used but might be of value.

DR. E. E. GRAHAM.—I believe this is a case of dilatation of the stomach. I have been fortunate enough to see a number of these cases and I have been struck by the fact that the prognosis in the cases I have seen

was, I think, much more favorable than one would suppose from a study of text books. I have had continuously under my observation a case that was reported by Dr. Hare in Keating's *Cyclopædia of the Diseases of Children*. The symptoms in that child were evidently classical at the time Dr. Hare wrote the article, for dilatation of the stomach. The child was apparently grown up to its stomach and at present suffers little if at all from its condition. I think this must very often occur in early infancy. Bottle-fed babies so often are over-fed and their stomachs dilated, at least temporarily to an unusual size, I think they very commonly suffer from acute gastric dilatation. So many of these children recover and develop into healthy boys and girls that I have been led to the conclusion that perhaps in early infancy acute dilatation of the stomach is a comparatively common disease, and in early childhood a moderate amount of gastric dilatation is not incompatible with perfect recovery.

DR. S. SOLIS-COHEN.—When was that area marked out, Dr. Packard?

DR. PACKARD.—This morning when he was lying on his back.

DR. COHEN.—Does it change from day to day?

DR. PACKARD.—Very slightly.

DR. COHEN.—Has it been examined with a diaphane? If not, it would be interesting to make an examination. This method is useful in delimiting the upper and lower curvatures but not so satisfactory in marking out lateral aspects. I agree with Dr. Graham, from my limited experience, that moderate dilatation is not uncommon in infancy and in a little while children seem to get much better of it, but I should be very much surprised to see a child "grow up" to that stomach.



THE PRESIDENT.—It seems to me very likely that the condition of dilatation of the stomach, is more common than we imagine, particularly in rickety infants. It is certainly known, as shown by autopsy, that dilatation of the stomach may occur in rickets and it is very probable that the big belly of rickety children which we put down as a rule to intestinal catarrh, is due, in part at least, to a dilated stomach. There is no reason why the atony and dilatation taking place in the intestine should not extend to the stomach as well. If we examined for it more carefully perhaps we should find dilatation more frequently in these cases than we do.

DR. PACKARD.—I carefully inquired in regard to the possibility of rickets and also in regard to any marked digestive disturbance during the first year and I could find no cause to suspect the presence of either.

DR. ALFRED STENGEL presented a case of Chorea followed by Arsenical Neuritis.

#### *Discussion.*

DR. MORRIS J. LEWIS.—This case has interested me very much and although I admitted him into the Orthopedic Hospital and Infirmary, I only had personal charge of him in the Hospital for a few days as I then took my vacation. My almost invariable rule is to put all cases of chorea under increasing doses of arsenic, generally beginning with three drops three times a day, and the case in question had arsenic in the form of Fowler's Solution, given in this manner until the daily dose reached thirty drops, when it was stopped as gastro-intestinal symptoms supervened. I have given arsenic so often in chorea that I have grown to look upon it as a safe remedy in childhood. Ten

drops three times a day I do not consider a large dose, as I have often seen it exceeded, not only without harm but with decided benefit, and this is the first case of arsenical neuritis, from the use of the drug in chorea, that I have seen, or that has occurred at the Infirmary to my knowledge, and a very large number are treated there each year.

DR. S. SOLIS COHEN.—I should like to ask Dr. Lewis and Dr. Stengel what was the manner of increasing and decreasing the dose of arsenic in this case and whether they have observed that poisoning, toxic symptoms of any kind, nervous or others, occur more readily when the dose is increased slowly and decreased abruptly than when it is increased rapidly and decreased slowly.

DR. LEWIS.—I always give arsenic in doses increasing one drop a day, although I believe some of my colleagues advance faster than this. I increase the dose until toxic effects, in the form of edema of the eyelids or of gastro-intestinal irritation, appear, when I instantly fall back to the dose taken about a week before, which would be about four to six drops less, to increase again until the same symptoms reappear, again falling back, and so on. I have gone to fifteen drops in this manner three times a day with no toxic effects whatever. This case I find had had slowly increasing doses of Fowler's Solution, until thirty a day was reached when it was stopped suddenly.

DR. COHEN.—The reason I asked that question, is, that I have been taught and it is my experience, that in adults and in older children whom I see, there is much more likely to be disturbance from arsenic if its use is stopped suddenly after long continuance, than if withdrawal is gradual; and I believe there are cases on record of arsenic eaters who have shown

symptoms of arsenical poisoning only when removed from the region of arsenical springs as in the case of the Styreans, or suddenly taken off the drug when they have been in the habit of taking it medicinally or as an indulgence, the fact probably has no bearing upon the case before us, but the query was suggested by the history.

DR. A. A. ESHNER.—It was my privilege to see this case both during Dr. Lewis' absence and afterward, and I rather suspect that I was responsible for the quizzical note as to whether the case was one of infantile palsy or of peripheral neuritis. I am inclined to agree with the diagnosis of peripheral neuritis. One point, however, thus becomes rather difficult of explanation, that is, the presence (at times exaggerated) of the knee-jerks. I should under ordinary circumstances expect that with preservation of sensibility and with interference with the nervous paths through the anterior roots of the spinal cord in which pass motor and trophic fibers, with this interruption in the reflex arc, there should be rather absence or enfeeblement of the knee-jerks. In the absence of further sensory changes it seems that the differentiation between peripheral neuritis and anterior poliomyelitis becomes exceedingly difficult because the symptoms under these circumstances are all substantially the same. In peripheral-neuritis the lesion is simply in the periphery of the lower portion of the motor tract, while in anterior poliomyelitis it is in the spinal or central portion of this tract. It struck me as I saw the boy here tonight that while the peripheral lesions are practically symmetrical, the wasting is more marked in the right lower extremity, and the superficial temperature as conveyed to the hand is here also lower. The disturbance of gait is

also one of the doubtful features of the case. In the absence of sensory changes and of evidence of disease of the posterior columns of the cord or of the cerebellum, this ataxia may be attributed to the motor weakness. While, as has been indicated, the evidence points largely to the case being one of peripheral neuritis there are certain facts that do not free the diagnosis from all doubt.

DR. J. P. C. GRIFFITH.—Do you think this boy has improved?

DR. STENGEL.—He has improved some. Undoubtedly this poisoning did occur with a very proper therapeutic dose, and in cases of chorea I have given a great deal more than ten drops three times a day, and in some cases of other kinds in children, one case in particular whom I am now treating, a child having what I believe to be a Hodgkin's disease, I have used very much larger doses without feeling that I was giving in any way dangerous doses.

As far as the mode of administration is concerned I can see no indication from a search of literature, that one way of giving the drug is more trustworthy than another way. Perhaps gradual ascending doses are safer because patients get accustomed to them.

Most cases of arsenical neuritis do get well if the patient is not suffering with pronounced constitutional manifestations of arsenical poison. As to the diagnosis in this case, I agree with what Dr. Eshner says, and I find myself on two very uncomfortable horns of a dilemma. There is evidence in favor of both of the diseases named. The question is between arsenical neuritis with preserved knee jerk and sensation, and poliomyelitis with knee jerks that are sometimes very much exaggerated and legs that are not very much atrophied and with a bilateral disease that is almost symmetrical on

both sides. The latter is more difficult to explain than a neuritis with some deviations from normal course.

Dr. C. S. POTTS presented a patient with Progressive Neural Atrophy. The knee jerks and plantar reflexes were both abolished, and the typical deformity of talipes cavus existed. He stated that there have been but three such cases reported in this country.

Dr. M. H. FUSSELL presented two cases of Cretinism and read a paper upon that subject. Both patients were males, one six years old and the other eleven. In the youngest patient the family history was negative. He was three years old before he began to talk, but had lately improved rather rapidly in speech. He walked when 22 months old and his first tooth appeared much later than usual. His symptoms were typical of cretinism. There was no goitre: all the long bones were bowed, the joints enlarged, the skin thick and rough. He first came under Dr. Fussell's charge September 2, 1895. He was then given one grain of thyroid extract three times a day for three weeks, and became better and brighter immediately, and increased in weight and size progressively. Played all day three months after his first appearance: walked a mile at a time and his feet grew much larger in size. The anterior fontanelle entirely closed; mouth closed and did not dribble. He gained six inches, but the past few months growth has not been as rapid as the first few months. Dr. Fussell thought perhaps this was due to his not taking quite as much thyroid. He now seems in a really normal condition.

The second case, gained six and a half inches under thyroid treatment. He presented himself one year ago. Family history was negative. The child was born at term but was feeble

until two years old. He was dull mentally and did not smile or walk until after three years old. He did not talk until eight years old. Slept thirteen hours out of the twenty-four, and his general health seemed excellent. He never had any illness except measles. His symptoms all improved markedly as the result of the injection of thyroid three times a day in one-grain doses. Dr. Fussell thought these cases might properly be classed with those spoken of by Horsley, which are born with but few if any signs of the disease and gradually become cretins.

Dr. H. B. CARPENTER presented a patient with Cretinism, a female, three years old. She did well until one year old, then seemed to stop growing, she could say only a few words, "mamma" and "papa", and when brought to the Dispensary of the Childaen's Hospital three months ago, presented a typical picture, the enlarged tongue, stunted growth, etc. She has been very slow in teething and there was no sign of the thyroid gland. There was marked oedema of hands and feet, they were cold and mottled. She is 26 inches in height. Half a drachm of phosphate of soda three times a day, and quarter of a grain of thyroid extract in glycerine has been given her. Five days after beginning this treatment the mother brought the child back and said the child was brighter and better. The oedema subsided after a few week's treatment. She now walks well, will ask for things she wants, the temperature is normal, the urine is normal and she has now sixteen teeth: the tongue is also quite normal.

Dr. TULL.—I have been very much interested indeed in seeing these cases because a year ago I attended a woman, now dead, who was a middle-aged cretin, her arms and legs present-



ing an infantile appearance. She has two nephews both of whom I have attended, having also been present at their birth, and both of these children look as if they might have been the twins of those presented by Dr. Fussell. The mother of my patients presents a marked *götre*.

DR. D. J. M. MILLER.—I should like to know what preparation of extract Dr. Fussell employed.

DR. FUSSELL.—Parke, Davis & Co.'s thyroid extract.

DR. MILLER.—The reason I asked Dr. Fussell what preparation he used was because I think some of the preparations must be unreliable. I had a patient, an old gentleman about 60 years of age, with congenital *ichthyosis* to whom I directed the Resident to give thyroid extract, two grains three times a day. He took the thyroid ten days without any symptoms whatever. Shortly after this it was discovered that he was quite prostrated, his tongue coated, and his pulse running between 120 and 130. It was then found that he had been taking 20 grains daily of Parke Davis & Co.'s preparation, in other words 60 grains a day. It was immediately stopped and he recovered. Either there was an *idiosyncrasy* on his part, or the preparation of the drug was unreliable and I believe Dr. Starr of New York, who reported some cases a few years ago, emphasizes the importance of employing a reliable preparation and mentions Burroughs, Welcome & Co.'s of London.

DR. STENGEL.—Did your patient lose weight?

DR. MILLER.—He grew thin and his *ichthyosis* improved very much. There was complete loss of appetite and pulse running from 120 to 130 and prostration was very extreme. It was two or three weeks before he recovered entirely.

DR. A. E. ROUSSEL.—I would like

to ask the experience of the members of this Society with thyroid extract in cases after 30 years of age. I remember reading a review in the *Semaine Medicale* quite recently where it is claimed the results obtained after 20 or 25 years of age are hardly to be noticed, and in this connection I think I remember the case of a *cretin* at Blockley when I was a Resident there 14 or 15 years ago, and I have been wondering whether anyone here had tried thyroid extract on the same.

DR. PENDERGAST.—There is a case in West Philadelphia, an account of which was published in the *Sunday Inquirer*, possibly a year or so ago, with a picture of the child, although the child now is about 25 years old. I came across the case accidentally, while attending another member of the household. The patient has never talked, never walked and is an imbecile in every way. It simply makes known its wants by a sort of a grunting sound. Both cornea are ulcerated, the child has an enormous head, the tongue protrudes, the mouth is open all the time and the case is one of extreme interest, although I have never followed it up as I was not called to see the child.

It would be a case worth looking after and experimenting with thyroid extract to see if anything could be done at that period of life.

Another point about which I should like to ask Dr. Fussell, is the effect of thyroid extract in *exophthalmic götre*? I have seen it recommended in such cases. In those cases that do not denote a congenital absence or atrophy of thyroid gland I think it would do mischief.

DR. W. S. STEWART.—I have had in my experience of thirty years, four cases, and I have noticed that the parents, if not blood-relations, have at least, very similar characteristics and physical conditions. One *cretin*.



whose parents were blood-relations, while an imbecile in other ways, was able to mimic well the gait of a bow-legged man.

DR. RHEIN.—I have seen within the last two years cases of imbecility which, though not true cretins, presented a certain aspect of cretinism. The face and hands were puffy in appearance, the hair coarse, the scalp dry and scaly. In such cases, I think the thyroid extract should be employed in the hope of assisting mental development. In one case in which I ordered the extract, the results were encouraging.

DR. GITHENS.—I had under my care some years ago a very interesting case, a child with four healthy brothers and sisters, at a time when the family were under intense mental excitement because of failure. The child was perfectly healthy when born and remained so for about six months, with the exception that it was rather sleepy, so that I thought the nurse drugged it, but I could never prove it. The child ceased to grow at six months old and remained that size for thirteen years. The myxœdematous condition was horrible to look upon. The skin of the limbs was typical. At this time I saw some of the articles in English journals upon thyroid extract, so I consulted with the family and used dessicated gland obtained from Parke, Davis & Co. I commenced with five grains twice a day, found it entirely too large, and reduced it so that one or two grains were given every two or three days. The effect was marvellous, the myxœdematous condition disappeared; previously the tongue could not get into the mouth, but it went within; the lips contracted, the face changed completely and the child which up to this time had not been able to stand, walked, spoke single words, began to use words to express ideas, and to

stand and to begin to grow so that in six months it gained six inches. Unfortunately, a convulsion, the cause of which could not be determined, brought the experiment and the life of the child to a sudden termination.

DR. ESHNER.—There is now under observation at the Infirmary for nervous diseases, in the service of Dr. Wharton Sinkler, a cretin upwards of 32 years of age, who has been under treatment for more than a year with thyroid extract, in doses of one, two, or three grains, given once or oftener in the day. In this case there has been the usual disappearance of subcutaneous fat or mucoid tissue, loss of weight, softening and growth of hair, return of perspiration, increase in growth, and improvement in intelligence. On Nov. 11, 1895, the weight was 74 lbs., the height, 112.6 cm. On July 15, 1896, the weight was 67 lbs., the height 115.8 cm.

I should say that in the cases of maturer years, while the improvement is not so marked as in cases in younger children, it is still very considerable. In either case the improvement ceases with the withdrawal of the medicament, so that it is necessary to continue the administration, in minimal dosage, to maintain the effect. The patient of whom I have spoken is about as large as a child of 12 years, but her intelligence is far below that of a child of this age.

DR. ROSENTHAL.—Have you made any examination of the mothers of these children? Have you made any examination of the reflexes of these children, as well as the motion? I recollect in Elwyn they had some cretins who, when they rise from the floor on which they spend most of their time, got up in a very peculiar manner, which resembles progressive muscular atrophy.

DR. FUSSELL.—I made no examination of mothers except cursory.

Both children had peculiar motion on getting up in coming into the Dispensary. The mothers are not goitreous.

In regard to the little boy about 12 years of age, the last patient shown, as an instance of his improvement mentally: the other day he was shown a picture of a 12 or 13 year old child, and he said that it was a picture of himself when he was a boy.

DR. GEORGE WOODWARD read a paper on The Chemistry of Colostrum Milk.

DR. A. V. MEIGS.—It is difficult to criticise a paper such as that to which we have listened. It has taken a great many weeks to elaborate, and is therefore almost beyond criticism for the moment. One can only speak of the subject in a general way and express admiration for the work done by the author. The difference in the actual chemical composition between colostrum and ordinary milk is probably not very great. The presence of the so-called colostrum corpuscles has for a long time been known and it has also been known that there are physiological differences between colostrum and ordinary milk. The whole subject of milk and analysis is of comparatively recent origin. Becquerel and Rodier in their treatise on Pathological Chemistry, published in France in 1854, state that milk analysis dated from the early part of this century, and that previously only its physical characteristics had been studied. Milk may for all ordinary purposes be said to consist of five ingredients, water, fat, casein (which includes all albumoids), lactose or sugar and the salts. It is easy to ascertain the amounts of the water, of the fat, and of the salts, and chemists do not agree in regard to the quantities of these three ingredients,

but when it is attempted to decide the amounts of casein and sugar the difficulty in milk analysis is reached and the differences of results obtained have been so great as entirely to satisfy my mind that most of the difference is due to faults in the methods. For instance, one chemist reports 6 or 7 per cent casein and 1 per cent of sugar or vice versa. Such wide divergences are certainly due to faulty methods and not to actual differences of the milk. There is every reason to believe that milk is of reasonably staple composition.

There is one criticism I may make:—as I understood Dr. Woodward, he said that he estimated the proteids directly and determined the amount of sugar by difference. In original work in analysis I think this is an unreliable method of arriving at a result. It is only if each constituent part is separately determined that the final results can be checked and certainty of conclusion attained.

My own method of analysis I believe to be accurate and I do not see why it is not a good one although it is so very simple in its principles. It takes about two or three weeks to carry the process through with a single specimen of milk and therefore it occupies a large portion of time. I spent two years working at the subject and in the course of that time did not make a very great number of analyses. It has always seemed to me that the reduction of sugar by copper or the estimation of the sugar with polariscope, when we wish to determine the casein and sugar in milk, are unreliable methods. The method of Vernois and Becquerel, which has been more widely quoted than any other analysis of human milk, was to determine the casein by adding acetic acid and rennet to the milk, which precipitated the casein. They then direct that

the whole mass be thrown on the filter, and the clear filtrate was tested by the polarimetre of that day, probably very similar to the polariscope of today. This method is so inaccurate that it is easy to understand their overestimating the casein, because much sugar as well as casein must remain upon the filter. The estimate of the casein by difference instead of directly is most unscientific and almost certain to lead to erroneous conclusions.

I once sent to a professed sugar chemist a sample of milk residue of which I wanted an estimate of the sugar and he answered that there was a very much less quantity than I thought it contained. Thinking he might have made an error and in order to determine whether his method was correct I made a solution of milk sugar and asked him to tell me the strength; he gave me a wrong answer which satisfied me that the determination of the sugar with the polariscope is an unreliable method when applied in milk analysis. The copper reduction method has been worked out much better and has been much more used in determining grape sugar than ever has been done with milk sugar, and I consider any method which determines either one of these important constituents, casein or sugar, by difference, introduces a great element of liability to error.

DR. STENGEL.—I can appreciate the difficulty to which Dr. Woodward has alluded of making analysis of all the constituents when specimens are examined daily and it is fortunate that he selected the lactose as the

constituent to be calculated from the total solids and the substances specially determined. The quantity of lactose is so much greater than that of the proteids that even a considerable error in the determination of the latter would not materially affect the result as far as the lactose is concerned: while, in the other case, had he determined the lactose and estimated the proteid by subtraction, a relatively small error would have rendered the result comparatively worthless as far as the proteids are concerned. It seems to me that Dr. Woodward's work is commendable because he has taken the trouble to estimate by Kjeldahl's method the quantity of albuminous matter from day to day. There are undoubtedly some errors in this estimation, as he admits. The nitrogen of the milk is certainly not all proteid-nitrogen, though the amount of non-albuminous nitrogen is very small. In the second place, the factor for deducing the albumen from nitrogen cannot be said to be absolutely accurate since albuminous bodies differ in their composition. This error, likewise, must be very small. It would seem to be desirable from the scientific point of view to know the exact quantity of each of the different proteid bodies found in milk, but such an analysis would require a great amount of material and such an expenditure of time that it may be doubted whether daily analysis could be carried out by a single person. For clinical purposes, it is perhaps at the present time unnecessary to consider the different albumins separately.

## Editorial

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### CURFEW-SLEEP.

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The recent attempt in one or more of our Western Cities to revive the custom of ringing a bell at 9 p.m. and requiring children under 15 years of age, not to appear on the streets after that hour unaccompanied by parent or guardian, has provoked considerable comment and discussion. This practice of ringing a bell at eight or nine in the evening was introduced into England by William the Conqueror. At first it was the *couvre-feu* bell when all fires in the house must be extinguished or covered. It was intended to prevent conflagrations. Of course this original idea long since disappeared but the practice has been continued. It is not an uncommon thing to hear in a New England manufacturing town, in the middle of the evening, the loud tones of the factory bell. Few can explain the practice but the useful results are many. The revival of the custom in the West takes its origin, we believe, with the police, and has for its objects certain moral and social reforms. It might very properly receive the support of the medical profession. For fifty years and more there has been a constant effort to win hours of labor and pleasure from the night. Candles have given place to lamps, lamps to gas, and gas to electricity. Man need no longer sleep because it is too dark to do anything else.

With the increased opportunity thus given has come a multitude of diversions of duties and privileges. Our ancestors knew nothing of them and we pity them. But the story is not all one-sided. It is a remarkable coincidence at least that with this seizure of the hours of the night, there has come a great increase in people who have trouble with their eyes, and in people whose nerve centers are exhausted. A mild case is "neurotic," a severe or extreme case is "insane." How close or how distant the relation of these facts each man may decide from his own experience.

But what has all this to do with Curfew-Bells? Simply this—We should hope that such a regulation would keep children at home or bring them there at a reasonably early hour. Whether it did or did not, the children should have more sleep. The old adage, "Seven hours for man, eight hours for a woman, nine hours for a child and ten hours for a fool," has this at least of truth in it. The child does need more sleep than the adult. Sometimes by inheritance but far more often by early training, habits of light, fitful or brief sleep are started. Ten hours is none too much for a child under fifteen years of age. Indeed it is often not enough in this high pressure system now employed in our schools. By all means get the children home at 9 p.m. and if possible



before then. To get them quietly off to bed at 9 would be better. Do not let them study two or three hours every evening.

It may mean a little less learning at the end of a year but it will also mean better eyesight, stronger muscular and nervous systems. We should hear less about children who are overworked and must either lose a long period of schooling or stop studying entirely. For the time they must study, let them have good, clear, strong, steady light, coming from the left side, above and behind. Do not let them go direct from their books to bed, but have a little recreation. Dumb-bells, a brisk walk or run in a good lively game will ensure in the majority of cases refreshing sleep, not disturbed by bad dreams or the vain efforts of the brain to solve the problems of the day.

We hardly need suggest the need of fresh air in the room and moderate covering on the bed. By moderate, we mean covering proportioned to the degree of cold. The evening meal should be simple, and if given at say five o'clock, many a child will sleep better for having a cracker or a little bread and milk just before retiring.

Reuben Post Halleck in his "Education of the Central Nervous System" points out the need of having the sleeping room free from stimuli. The stimulus that comes from light or sound may not be sufficient to awaken a child, but it will nevertheless arouse into activity the cells of the brain and this excitement will spread out along the nerve fibres. As a consequence the child is not refreshed when he wakes in the morning, as he should be. These little brains which are constantly receiving new impressions by day, need absolute rest at night. Let the room be so situated that no bright light shall shine into it, and let the parents forego all noisy demonstrations after the children's bedtime.

But we are told that children fear the dark and that therefore their sleeping-room must be lighted. This childish fear is the subject of an interesting chapter in James Sully's "Studies of Childhood." Its origin is traced to the development of the imagination. The remedy lies in early training. Let the child from the very first be accustomed to the dark. When fears arise do not laugh at them but endeavor to explain them away, or, failing in that, replace them by more pleasant fancies. Terrifying stories will of course be guarded against. As they become a little older, they may, as Rousseau suggests, be encouraged to explore dark places and learn by experience that material objects do not change in the dark. At any rate every effort should be made to secure rest for the optic nerve centers at night. The problem of quiet is easily solved in the country and sleep is, as we all know, correspondingly more refreshing there. But in the city we must do the best we can and that frequently is not very much.

## REVIEW OF PÆDIATRY.

### The Quality of Antitoxin Used in America.

It occurred to the *Medical News* that an investigation into the quality of the various serums most extensively used in the large cities of the country, would be a fitting supplement to the Collective Investigation Report, and would render to the cause of serum-therapy, to the army of physicians who were making use of this agent, and, indeed, to humanity at large the greatest possible service.

In order that the investigation might be conducted with absolute impartiality, samples of antitoxin were procured in the open markets in accordance with the method adopted by any physician intending to use the remedy in his private practice. These samples were supplied by doctors residing in different localities, with the understanding that each should procure the brand of serum most extensively used in his respective city. Nineteen specimens were thus obtained; six of these were the output of two municipal laboratories, *i. e.*, they were board-of-health serums of New York and Philadelphia. The products in each case bore duplicate labels, except as to the dates of manufacture. Thirteen came from private manufacturers in this country and abroad.

It is therefore evident that the work was undertaken without the possibility of favoritism or prejudice, and that the specimens were procured under conditions corresponding as closely as possible with those met by the practitioner when called upon to obtain it for immediate administration.

The samples were sent direct to the New York office of the *Medical News*.

Upon their arrival the external wrappers, and the labels on the bottles were carefully removed, pasted in a book, and numbered 1, 2, 3, etc., the corresponding figures being pasted upon the bottles, so that there remained no means of identifying them except by the number attached. These bottles were then forwarded to Professor A. C. Abbott at the Laboratory of Hygiene, University of Pennsylvania, at Philadelphia.

In obtaining the service of so distinguished a bacteriologist as Dr. Abbott, we feel that the most perfect confidence in the scientific accuracy of this report is secured.

The method employed in determining the antitoxic values of the several samples is that of Ehrlich, Kossel, and Wassermann, and the protective values of the serums are expressed in terms corresponding to their standard, *viz.*, a serum of such strength that one-tenth c.cm fully protects a guinea-pig against ten times the minimum fatal dose of diphtheria toxin is a "normal serum," and one cubic centimeter of such a serum contains an "immunizing unit." Serums of such strength, therefore, that 0.01 and 0.001 c.cm., have the same effect as 0.1 c.cm of a normal serum, are ten and one hundred times as strong as a normal serum, *i. e.*, contain ten and one hundred immunizing units respectively per c.c.m.

The majority of the samples exhibiting the average required strength; were unusually rich in protective substances, while in only a very few samples, was there a relative deficiency of antitoxic properties.

In one or two instances the figures given for the value of a sample do not,

in all probability, represent the *highest* limit of protection possessed by these serums; this refers only to those samples that proved to be of unusual strength. On the other hand, the samples shown to be so poor in antitoxin as to represent but a very low multiple of a normal serum, were eliminated after tests that to us demonstrated their comparative uselessness for therapeutic purposes. The figures given for the balance are those at which protection was absolute.

Practically it may be said that some samples of serum are found to retain their strength absolutely for periods of from three to twelve months. Other samples are found to gradually lose their strength, so that at the end of three or six months they may contain but about two-thirds of the original strength, or two-thirds the amount of antitoxin units. This does not seem to depend entirely upon the preservative used. The ordinary preservatives are camphor, carbolic acid, and tricesol. Variations have occurred with all of these three substances.

The value of the antitoxin unit is estimated entirely upon the reaction of guinea-pigs. These animals though fairly uniform do vary within consid-

erable limits. It is, therefore, possible that in a series of tests the variation in the susceptibility of different batches of guinea-pigs may be great enough to make quite a variation in the standard; that is, for example, one guinea-pig may require one-tenth more than another guinea-pig for a fatal dose. If the stronger guinea-pig be used as a test the antitoxin sample tested would contain one-tenth less number of antitoxin units than the same sample tested on the other guinea-pig, which was weaker and required one-tenth smaller amount of toxin to kill it.

Different manufacturers vary in their ideas of the proper number of units to place in the different grades. Recognizing the fact that serums may gradually lose in strength under various conditions, and believing that a larger number of antitoxin units is absolutely harmless, some manufacturers insert even as many as twice the number of units which they represent to be present upon their labels. Others believe it more accurate to put in only about so many more units as they expect the serum to deteriorate within the time during which they expect it to be used.—*Medical News*, Dec. 19, 1896.

# ANNALS OF GYNÆCOLOGY AND PÆDIATRY.

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## ORIGINAL COMMUNICATIONS.

### DIAGNOSIS AND TREATMENT OF ECTOPIC PREGNANCY.

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I use the term "ectopic," meaning simply *outside*, rather than that of "extra-uterine," which, as it implies that the pregnancy must be outside of the uterus, would be a misnomer in cases of pregnancy occurring in that part of the course of the Fallopian tube situated within the uterine walls.

The relative frequency of the occurrence of ectopic pregnancy is evidently much greater than was supposed by the older observers. Pozzi says: "The condition is somewhat rare. Out of sixty thousand women examined in the course of seven years in the clinics of Carl Braun and Spaeth, of Vienna, there were but five cases of extra-uterine pregnancy (reported in 1886). This proportion would seem to be too low: Fasola

(1883 to 1885) observed an equal number of cases out of only one thousand five hundred and sixty-five pregnancies in multipara, who had remained for sometime sterile. [Greater skill in diagnosis and early resort to laparotomy in doubtful cases, have proved this condition to be much more frequent than was supposed a few years ago. Tuttle, of New York, has reported (1891) nineteen cases operated upon within a short time, and has seen five cases during the last four months at the Roosevelt Hospital.] " The statistics of the older writers are doubtless rendered of little value to us now because of the fact that very few cases were then diagnosed in the early stages. The ones included in Pozzi's statistics, being evidently only those cases that came



into Braun's and Spaeth's lying-inwards for confinement, and so were the only ones that had gone to full term, which as we know now would represent but a very small percentage of all the cases occurring in a locality.

My own recent experience also tends to show that the accident is not a very uncommon one, as during the last twenty-two months I have operated on seven cases, and diagnosed one other in consultation. During this time the birth statistics of the city of Detroit show a total of about 8800 births, which would make an average of the cases which came under my observation alone, of about one in 1100. Of course this does not take into account the doubtless considerable number of pregnancies which have ended in abortion and so are not on record, but for statistical use the showing is probably as accurate and as useful as any that can be cited. And when it is considered that this number which have come under my observation and treatment during this time, is probably only the fractional part of the grand total of the number of occurrences of this very dangerous accident, an approximate idea of its relative frequency can be imagined. Its frequency in large cities, by virtue of the great frequency of cases of diseased Fallopian tubes, is doubtless greater than in the country, where the ravages of the gonococcus and other micro-organisms inimical to the health of the genital tract are less in evidence.

Until the recent achievements in

abdominal surgery opened up this field its pathology was very confused and but poorly comprehended. To Mr. Lawson Tait is principally due the honor of straightening out the tangle and giving us a clear and seemingly true statement of the pathology of ectopic pregnancy. His classification, which was given in an amended table in the "*Lancet*," September 1, 1888, is as follows:

"Scheme of Ectopic Gestation in tube-ovarian tract.

"1. Ovarian: possible, but not proved.

"2. Tubal, in free part of tube: and is —

"(A.) Contained in tube up to fourteenth week, at or before which time *primary rupture* occurs, and then the process of gestation is directed into —

"(B.) Abdominal or intra-peritoneal gestation, uniformly fatal unless relieved by abdominal section, primarily by hemorrhage, secondarily by suppuration of the rupture sac and peritonitis.

"(C.) Broad ligament or extra-peritoneal gestation.

"(D.) May develop in broad ligament to full time, and be removed at viable period as a living child.

"(E.) May die and be absorbed as extra-peritoneal hematocoele.

"(F.) May die, and the suppurating ovum may be discharged at or near the umbilicus, or through the bladder, vagina, or intestinal tract.

"(G.) May lie quiescent, as a lithopædion.

"(H.) May become abdominal, or

intra-peritoneal gestation by *secondary rupture*.

"3. *Tubo-uterine or interstitial* is (a) contained in the part of the tube embraced by uterine tissue, and, as far as is known, is uniformly fatal by intra-peritoneal rupture as (B) before the fifth month."

Tait believes that spermatozoa never pass above the uterus, excepting in cases of disease of the Fallopian tubes where the normal action of the ciliated epithelium covering this mucous membrane is interfered with. He believes, also that ectopic pregnancy always begins in the tube, and when found elsewhere its situation is the result of transplantation after rupture of the tube. Cases of supposed ovarian pregnancy are, in my opinion, usually the result of transplantation of the ovum during its slow expulsion from the tube through the fimbriated extremity. The ovum expelled in this way may also become attached to the omentum intestines and other abdominal organs, and there develop, and at the time of abdominal section or post mortem, the tube shows no sign of the pregnancy having begun in it. My seventh case might have terminated in that manner, as the five weeks ovum was situated in the outer third of the tube, the infundibulum was dilated to the diameter of about five m. m., with a small blood clot and the ovum, close behind it, presenting.

The point of rupture of the tube is usually, if not always, at the site of the implantation of the placenta,

and is caused by the weakening of the muscular walls by the separation of the muscular fibres by the villi of the chorion, which rapidly insulate themselves between them. When rupture occurs upward the ovum is expelled into the peritoneal cavity, and free, unrestrained, and immediately dangerous hemorrhage will result; but if the implantation of the placenta is in such a position as to direct the rupture downward, the rent may be situated between the folds of the broad ligament, so that the contents of the tube and the hemorrhagic blood will be forced into this confined space, the resistance of the walls of the ligament usually being sufficient to limit the hemorrhage and cause the formation of a firm clot, which results in a well defined extra-peritoneal pelvic hæmatocele, and is not usually immediately dangerous, unless secondary rupture through the walls of the broad ligament occur, when it assumes the dangerous character of the upward rupture. The latter form the class of cases in which the fœtus survives and develops to full time; in most instances, however, it survives for less than the normal time of gestation. After the death of the fœtus the amniotic fluid is absorbed, causing a shrinkage of the tumor, after which the soft parts of the fœtus may be absorbed and a calcification of the remaining parts take place, resulting in a formation of a lithopædion; or suppuration within the sac may occur and point and discharge at or near the umbilicus,

through the bladder, vagina, or intestine, the bones of the fœtus escaping with the pus and other debris by a slow process of ulceration. The reason for the discharge of the fœtal remains into these organs, rather than into the peritoneal cavity is an interesting one and is explained by the anatomical position of the ovum after it passes out of the Fallopian tube. By passing within the folds of the broad ligaments it becomes sub-peritoneal, and as it develops it gradually strips up the peritoneum from the pelvic floor, abdominal walls, bladder, uterus and rectum, and these parts being thus unprotected by this membrane, a solution of the continuity of their tissues is easily accomplished by the presenting parts of the contents of the sac. If the walls of the sac, (composed of the broad ligament) should give way to the rapid distention caused by the growth of the ovum, and discharge the fetus into the abdominal cavity, the sub-peritoneal pregnancy would be changed into a true abdominal pregnancy, and if the patient survives the shock and hemorrhage the fœtus may develop to full time in that position.

Tait places the tubo-uterine or interstitial as the most dangerous, and says they uniformly prove fatal by intra-peritoneal rupture before the fifth month. My sixth case was of this variety and was fortunately saved by prompt section. Many cases of this kind doubtless occur, in which the ovum is situated so close to the uterine orifice of the tube

that it becomes extruded into the uterus and becomes a normal pregnancy, or probably more frequently is discharged as a normal abortion. Tait does not believe this to be possible, as he has never seen a case in which this form of rupture could be demonstrated. Such a diagnosis must of necessity be theoretical as the contraction of the uterus would doubtless prevent any dangerous symptoms.

The consideration of the diagnosis of ectopic pregnancy should be under two heads, viz: before and after rupture.

The diagnosis before rupture is usually a very difficult matter and as a matter of fact very rarely accomplished. Tait practically says that it cannot be done, or that we shall fail so often that it amounts to the same thing. One of the obstacles in the way of early diagnosis is the fact that in the large majority of cases no symptoms are present that induce the patient to consult the physician, the first symptom usually being that of primary rupture. The first point to be determined is that the patient is pregnant, for if this can be done the question is simplified and concentrated on the point of differential diagnosis. Even then it is not always a simple matter, for as the very nature of the cases suspected usually pre-supposes a history of previous tubal diseases, the discovery of an enlarged tube is not conclusive, as it may be pyosalpinx, hydrosalpinx or inflammatory deposit in and around the tube, resulting from the old

attack of pelvic inflammation. As most cases of suspected ectopic pregnancy are found to be normal, exploration of the uterine cavity is not justified, excepting in cases where there may be urgent symptoms to demand it, and then it must be understood that the risk of abortion is realized beforehand. In case of interstitial pregnancy, the differential diagnosis previous to rupture is almost an impossibility. In the case operated on by myself, the patient experienced no symptoms besides those of normal pregnancy up to the time of rupture and as she had several successive slight ruptures preceding the final collapse opportunity was given, and she was examined by two competent general practitioners, neither of whom suspected anything but normal pregnancy with threatened abortion. The apparently full uterus could be felt, with the tubes and ovaries on either side in an approximately normal condition.

About the only way to come to an approximate diagnosis is by exclusion. Given a case of a woman during the fruitful age, with pelvic trouble of any kind, the first thing that is necessary is that the examiner should have in mind the thought of ectopic pregnancy. How often has the diagnosis of some rare form of disease flashed upon us simply by hearing or reading its name, and the case that has worried and puzzled us beyond measure is suddenly made clear as though by revelation. The physician who never thinks of ectopic pregnancy until the nature of the

symptoms are so unequivocal as to force the thought, can never expect to diagnose a case before rupture, and he will be fortunate if he recognizes a case even after the symptoms of rupture have occurred. Theoretically, I believe Hegar's sign of normal pregnancy to be valuable in differentiating between a uterus that is filled by a soft fluctuating mass, such as is present in pregnancy, and one that is empty. Beside the presence of fluctuation in the body of the uterus, the sign includes a characteristic softness, pliability and thinning of the lower segment of the uterus, that is to say of the part immediately above the insertion of the sacro-uterine ligaments. By depressing the uterus it is possible to distinguish the upper portion and the rigid cervix from the lower portion, the softness is so marked that one could imagine the cervix to be simply in contact with a pelvic or abdominal tumor. This group of symptoms was demonstrated to be absent in my cases, excepting in the case of interstitial pregnancy, where I was not able to make a satisfactory determination of the conditions. The sign becomes very marked at the third month, but is present although in lesser degree, previous to that time. If a constant flow of blood be present, and especially if shreds of decidua be expelled, so that examination of the cavity of the uterus becomes justifiable, then this should be done. Given, the purple color of the cervix and vagina with elevation of vaginal temperature at or above



99.7° F. (Henry D. Fry in *American Journal Obstetrics*, October, 1894) in a woman otherwise healthy, whose uterus is empty, and who gives a history of unusual menstrual disorder—either complete amenorrhoea or menorrhagia—with the other usual symptoms of pregnancy, the presence of ectopic pregnancy should be suspected, and if in addition to those indications a small tumor in one of the Fallopian tubes can be demonstrated to be present, the diagnosis of ectopic pregnancy is fully certain.

Diagnosis during or after rupture should rarely offer any difficulties, providing again the examiner has the thought of ectopic pregnancy in his mind. If he has never seen, heard of, or read of a case of the kind, he surely will fail to make a diagnosis, but if his mind has ever dwelt on this peculiar accident of nature, he should not fail to at least *suspect* the true nature of the trouble. The symptoms of rupture are very marked and are so alarming as to induce the patient to hurriedly summon the physician. In considering the diagnosis of this stage it will be of value to glance again at a bit of the pathology, and for the purpose I quote from Tait's "Lecture on Ectopic Pregnancy" (1888) P. 7, as follows:

"A tubal pregnancy is bound to rupture; in the free part of the tube it rarely delays beyond the twelfth week and may be as early as the fourth; in the interstitial part of the tube from the third to the twentieth week. This rupture takes two directions: into the peritoneum which

is the fatal form; and into the cavity of the broad ligament. The latter, or extra-peritoneal, alone gives all the cases, which go on to the period of viability, all the lithopædia, all the suppurating cysts discharging into the bladder, rectum, vagina and abdomen, and also all cases which by secondary rupture of the broad ligament into the peritoneal cavity are called "Abdominal Pregnancies."

I quote the following from Strachan's "Extra-uterine Pregnancy," to which I am much indebted in the preparation of this paper:

"We will first consider the symptoms and diagnosis of the more fatal form, that caused by intra-peritoneal bleeding. The injury sustained, as Barnes says, is compound. There is the traumatic violence attending the rent, and the sudden impression upon the sympathetic centers producing shock, and the hemorrhage. The symptoms are also two-fold: shock causes collapse, shown by loss of bodily heat, loss of all strength and energy, almost imperceptible pulse, intense paleness, vomiting, and often in a very few hours death. To this group of symptoms, Barnes applies the term "Abdominal Collapse," and the name is a good one. These symptoms ensuing on rupture are so characteristic that violence and poisoning are the only things with which it will be easy to confound them. The whole thing usually happens so suddenly—some slight exertion, such as stooping at work—when a violent pain seizes the woman, she becomes cold, pulseless, collapsed, and

and is so often found dead or dying that suspicions of violence are often aroused. Sometimes, especially if the unruptured ovum sticks in the rent in the tube, the hemorrhage may not prove immediately dangerous. The woman recovers from the symptoms of shock, she may have no further attacks for a few days when bleeding suddenly recurs with another attack of pain and fainting. This may be repeated several times before death occurs, but unless surgery steps into her relief, death is all but certain. Some cases are so violent in the first onset that there is hardly time to do an operation, but, as a rule death does not occur for several hours."

The termination of the quotation would lead one to believe that death usually will occur within a few hours after the rupture, whereas, as a matter of fact, I believe that only a small percentage of the cases of rupture die so soon, death usually being a matter of days, and sometimes of weeks, of slow hemorrhage.

Peritonitis is not usually an accompaniment of the rupture and hemorrhage, even when the latter has existed for weeks, and the abdomen filled with blood-clots of various ages. Tait is very clear on this point (P. 489, *Diseases of Women Surgery, and Abdominal* Vol. 1) and quotes Parry at length, in support of his position. Parry says: "Peritonitis so rarely follows rupture of an extra-uterine gravid cyst, that the possibility of its occurrence need not be taken into consideration in the de-

cision of any question relating to pregnancy or to treatment." In my own experience cases 1 and 5 illustrated this point, as hemorrhage in both instances had progressed for several weeks, with abdomen full of blood, and yet no peritonitis existed.

If a woman of fruitful age is suddenly seized with severe pain in the lower part of the abdomen, attended by faintness from which she does not readily recover as with ordinary faintness, weak rapid pulse, pale, anxious countenance with normal or sub-normal temperature, the previous history of the case and a physical examination are hardly necessary to complete the diagnosis: but if in addition to these symptoms of shock and hemorrhage, a history of probable pregnancy, discharge of decidua and irregular menstruation can be obtained, and an enlargement of either Fallopian tube can be diagnosed, the diagnosis, of course is positive. The cases are sometimes not diagnosed for several days, or even weeks after the primary rupture, when in addition to the symptoms enumerated, there will be usually a slight rise of temperature, some tenderness of the abdomen with more or less distension, and by percussion with the patient in different positions, free fluid may be demonstrated to be present in the abdominal cavity. Hamatocele in the posterior *cul de sac* cannot be detected in these cases of intra-peritoneal hemorrhage, as the fluid is free and not held in a mass anywhere so as to form a tumor, as

is the case with the cases of hemorrhage into the broad ligament.

The symptoms attending extra-peritoneal rupture of the tube—that is, when the ovum and blood are forced downward into the cavity of the broad ligaments—are much the same as those attending the intra-peritoneal rupture, but usually of less severity, excepting in rare instances, and the patient usually reacts from the shock within a few hours, and a distinct tumor, formed by the blood held within the walls of the broad ligament, can be felt on vaginal examination. If the ovum dies after a rupture of this kind, the fluid portion of the tumor is soon absorbed, leaving a hard rounded tumor, which in time usually becomes absorbed also, but occasionally gives rise to the formation of an abscess, or occasions so much irritation as to necessitate its removal. If the rupture is into the left ligament, while it is becoming distended with blood the action on the rectum, doubtless from pressure, occasions severe tenesmus. This is called Tait's symptom of pelvic hæmatocele in left broad ligament. (*Extra-uterine Pregnancy*, "Strahan, P-41). If the walls of the broad ligament prove too weak to stand the strain of the pressure of the blood that is being pumped into the cavity, and give way, we then have the same symptoms that take place with the intra-peritoneal bleeding, as it is thus transformed into that variety.

The diagnosis of ectopic pregnancy after the foetus has survived the rupt-

ure and progressed in its development is often very difficult, but the history of symptoms of rupture is a very valuable link in the chain of evidence in these cases, and when present should be of great assistance in arriving at a diagnosis. If the foetus be dead at the time of examination there is often no way of making a positive diagnosis between ectopic pregnancy and a tumor of any kind, as even the history of symptoms caused by some tumors often simulates that of possible ectopic pregnancy. When ballottement can be felt it is a very valuable sign. It may be felt shortly after the death of the foetus, but disappears within a short time owing to the absorption of the liquor amnii. If the foetus be living so that the heart sounds can be heard, or foetal movements felt, and the uterus can be demonstrated to be empty, of course the diagnosis becomes comparatively a simple matter. When the foetus lives until full time, and then dies, there is usually a pretty reliable history of pregnancy by which the diagnosis with the assistance of physical signs may be quite confidently made. I have seen two such cases, by the courtesy of Dr. T. A. McGraw and Dr. Donald MacLean, of this City, and in both cases the diagnosis presented no great difficulties. These cases were both operated upon comparatively soon (within a few months), after the death of the foetus, which was favorable to working a correct diagnosis. In cases where several years have elapsed

after the death of the fœtus much difficulty may be experienced in arriving at a correct diagnosis, and it is in such cases that every effort should be made to obtain the minutest details of the history of them. There will usually be a history of supposed normal pregnancy following symptoms, more or less obscure, of rupture, then spurious labor for several days, soon after which the movements of the child (if they have been felt) ceased, and a diminution in the size of the tumor (absorption of liquor amnii) observed. Such a history coupled with the physical signs of a tumor apparently occupying the cavity of the broad ligament, should be sufficient evidence on which to base a diagnosis. Before the year 1883 there was practically no systematic treatment for ectopic pregnancy, operations being recommended only in cases of advanced gestation; and the mortality was certainly 100 per cent. in the intra-peritoneal ruptures and no one knows how high in the other variety. In 1883, Tait performed his first operation on a case of recent intra-peritoneal rupture, which was a failure. The history of the beginning of the correct surgical treatment of this malady, which had been so terribly fatal during the whole history of the human family up to this time, is of such vital and absorbing interest that I will give it in Mr. Tait's own words:

"In the summer of 1881 I was asked by Mr. Hallwright, to see with him in consultation, a patient who had arrived by train from London in

a condition of serious illness, that illness having been diagnosed by Mr. Hallwright, as probably hemorrhage into the peritoneal cavity from a ruptured tubal pregnancy. The patient was blanched and collapsed, the uterus was fixed by a doughy mass in the pelvis, and there was clearly a considerable amount of effusion in the peritoneum, but no distinct tumor could be felt above, and I agreed with Mr. Hallwright as to the nature of the lesion. This gentleman made the bold suggestion that I should open the abdomen and remove the ruptured tube. The suggestion staggered me and I am ashamed to have to say, I did not receive it favorably. I saw the patient again in consultation with Mr. Hallwright and Dr. James Johnson, and again I declined to act upon Mr. Hallwright's request, and a further hemorrhage killed the patient. A post mortem examination revealed the perfect accuracy of the diagnosis. I carefully examined the specimen which was removed, and I found that if I had tied the broad ligament, and removed the ruptured tube, I should have completely arrested the hemorrhage, and I now believe that had I done this, the patient's life would have been saved. (*P. 45, Dis. Woem & Ab. Surgery, Vol. 1.*) After the terrible lesson given to me by Mr. Hallwright's case, I did not see another example of ruptured tubal pregnancy, or one which I suspected to be of that nature, until I was called to Wolverhampton by Mr. Spackman, on January 17, 1883. There could be no doubt as to the nature of the



case, and Mr. Spackman was fully aware before I was summoned. The patient was already dying of hemorrhage, and I at once advised abdominal section. The fœtus, about the twelfth week, was lying amongst masses of clot and coils of intestine, and to these latter the partially extruded placenta had obtained new attachments. These I cautiously separated and occasioned fast and copious bleeding from every point. I wasted much time on trying to stop this hemorrhage, so that by the time the operation was finished my patient was practically dead. We got her to bed alive, and that is all that can be said. I thought much about this case for it was a bitter disappointment: I thought I should achieve a triumph, and I had only a failure. But my conclusion was speedily arrived at that I had blundered—that the true method of operating in such a case was to separate adhesions rapidly, regardless of bleeding, and make at once for the source of hemorrhage, the broad ligament, tie it at its base, and then remove the ovum debris and clots at leisure. This I have now done in thirty-nine cases with one death, and I think I may fairly say that I have really achieved a surgical triumph.” (P. 459.)

Following on this pioneer work of Mr. Tait there are now a large number of successful cases reported by abdominal surgeons all over the world, until now the question of abdominal section as the only method of treatment is no longer under discussion: certain details of technique, however, are still mooted questions, and one of

the purposes of this paper is to give my testimony on two of those points, which I will refer to in their proper places.

The operation for tubal ectopic pregnancy at the time of, or soon after, rupture, if uncomplicated by other forms of pelvic disease, is one of the simplest in abdominal surgery, and consists, briefly, in abdominal incision, immediate freeing of adhesions of the impregnated and ruptured tube with the fingers, without paying any attention to the abdomen full of blood, excepting so far as is necessary to obtain a clear field for manipulation, tie off the broad ligament attachments of the affected tube, and remove it, usually with the ovary, (thus instantly stopping all hemorrhage); then remove only the blood and clots which are in the pelvis and require but a few moments time to be quickly disposed of, after which the abdomen may be closed with or without drainage as the case seems to demand. The question of the removal of the extravasated, intra-peritoneal blood, the clots of which will often be found inextricably entangled in the folds of the omentum and coils of intestines, is an important one, whose solution I have made wholly to my own satisfaction. Beyond what can be quickly removed around the seat of operation, this exudate is best left in the abdomen, where the peritoneum will rapidly absorb it. Much precious time, which usually contains the valuable element of *life* to the patient may be lost in the manipulation necessary to completely empty the abdomen of this exudate.

The douche may be used, but the clots will mostly remain, and the unnatural douche water only takes the place of the natural serum that is washed out, so that very little is gained in that way, and to remove the clots with fingers and sponges is a slow process which is liable to do much damage by excessive manipulation. In my first case I attempted to make a clean job of it by these methods and I lost the only case in the seven operated upon, while in the other similar cases (Nos. 4-5-6-7), the method which I advocate was followed with very satisfactory results. I was pleased to note the same opinion expressed on this point by Dr. T. F. Prewitt, in an article in "*The Journal of the American Medical Ass'n*, January 2, 1897." The teaching on this point, heretofore, has usually been to "make a clean toilet of the peritoneum," which, in regard to the removal of blood resulting from an operation, is no doubt good surgery, but is in my opinion the worst kind of surgery when applied to ectopic pregnancy and an exsanguinated and collapsed patient. In regard to this detail of technique, Tait is curiously silent—as in fact he is regarding operative technique generally. Keith on page 492 "*Text Book of Abdominal Surgery*," advises washing out the clots with warm water. Pozzi, on page 255 "*Medical and Surg. Gynecol.*" simply says: "Schwartz recommends in this condition that we remove the whole of the blood, not placing any dependence upon the absorptive power of the peritoneum, but rather in the cases of profuse hemor-

hage, fearing the depressing influence upon the woman's system of the accumulated clots." The *best time* for operation in those cases is an important point, and raises a question that has been considerably discussed. Is it best to operate at once if the patient is in collapse, or is it wisest to wait for reaction? Can you tell if a given case is one in which reaction will occur, or is it one in which there is such rapid hemorrhage that death will supervene before reaction occurs? Is it good surgery to wait for reaction before tying a bleeding vessel in the abdomen when it would be considered very bad surgery to wait for such a reason before stopping a hemorrhage outside the abdomen? These questions indicate my position on this point. If I had waited for reaction to occur, I believe that I would have lost case No. 6 as it was one of interstitial pregnancy—the variety in which the cases, according to Tait, almost invariably die before assistance can intervene. During the preparation for the operation these cases should be stimulated and supported by the use of strychnine, nitro-glycerine and digitalin, hypodermatically, and as soon as the anæsthetic will allow, normal saline solution to the extent of one or two pints should be injected into the cellular tissue of the chest and thighs, as well as a pint or so thrown into the rectum. Reaction I believe will usually come on rapidly enough after the bleeding vessels are tied and the terrible out-flow of the vital fluid stopped, and a careful application of the supporting methods mentioned will

keep the flagging heart at work until the beneficial effect of the stoppage of the out-flow is noted by the nervous system, and give the transfused fluid time to be absorbed and distend the collapsed blood vessels.

When, after opening the abdomen, the pregnancy is found to be interstitial, the treatment must be quite different from the preceding, as the hemorrhage is from a rent in the fundus of the uterus, and not from one in the tube. If the accident is in a case of pregnancy of short duration—say under three months—the treatment may be comparatively simple, and is well illustrated in case 6, where I first tied the utero-ovarian arterial anastomosis on that side, then scraped out the cavity and sewed it closely together by several deep sutures. The tubes and ovaries, if diseased, should be removed, but if not I see no reason for disturbing them. The tube on the side of the trouble might become patulous, and another accident of the same kind happen again, but the possibility would be so remote that it is hardly worth considering.

In cases of interstitial pregnancy that do not rupture until the fifth month—the extent of time given by Tait—the gestation sac within the uterine tissue might be so extensive as to require hysterectomy, but I believe that hemorrhage from such a case would be likely to be so violent as to prove fatal before operative interference could be instituted. To wait for reaction before attempting to rescue a patient dying in this manner would surely be fatal for the patient, as the

bleeding from the lacerated uterine tissue, which is much more vascular under the same circumstances than are the tubal structures, would not be likely to become checked sufficiently to permit of reaction occurring.

In those cases where the rupture has occurred downwards into the cellular tissue of the broad ligament, and we have as evidence of such a rupture the pelvic hæmatocele, immediate operation is not usually necessary, as the resistance of the cellular tissue and the walls of the broad ligament, are such as to check the hemorrhage long enough for a firm clot to form, which, with the placental tissue forms a plug that closes the bleeding vessels. If the ovum dies after the hemorrhage and the amount of clots and debris be not large the mass is usually absorbed in time, and nothing serious comes from the accident; and this favorable issue is probably the rule in these cases. If, however, the clots break down and suppuration occur, the case is quite different and demands surgical treatment. It is interesting to note the opinion Mr. Tait had of those cases in 1882, prior to the date of his first operation for ectopic pregnancy, and evidently before his observations had entirely settled his ideas of the correct pathology of this form of ectopic pregnancy. On page 144, "*Diseases of the Ovaries*," he makes record of six cases of suppurating pelvic hæmatocele, on which he successfully operated by abdominal incision and drainage, and in none of the cases did he evidently consider the liability of ruptured ectopic pregnancy being an ætiological

factor, but treats them under the head of "pelvic suppuration," while in 1889, he writes, (P. 471. "*Dis. of Women and Ab. Surg.*") in referring to these six cases; "Of these cases I select only one as a characteristic example, to illustrate alike their pathology and treatment: and the history of the case is eminently suggestive that it had its origin in a broad ligament pregnancy." This brings up the mooted question of the ætiology of extra-peritoneal, pelvic hæmatocele. Most writers still cling to the idea that a collection of blood in the broad ligament may result from other causes than ectopic gestation, but as these cases never, to my knowledge, have presented an opportunity to verify such diagnosis by necropsy, and as such cases as have been thoroughly examined at the time of operation, have either been proven to be caused by ectopic gestation, or have remained in doubt, the preponderance of reliable evidence seems to be becoming more and more in favor of ectopic gestation as the only ætiological factor outside of traumatic causes. So strong is the belief in my own mind that, in any case serious enough to demand operative interference, I should consider the large extra-peritoneal collection of blood the result of ectopic pregnancy, just as I should if the blood were intra-peritoneal. The indications for operation are usually symptoms of suppuration, or constantly increasing size of tumor with great pain. The latter indication is indicative of rapid hemorrhage and consequent danger of secondary rupture of the walls of the broad ligament. The tumor is most

advantageously attacked from above by the abdominal incision, although there are some advocates of the vaginal route. When the collection is very great and the peritoneum has been dissected away from the abdominal wall, in front, the sac may sometimes be entered without opening the peritoneal cavity. The sac in all cases should be emptied and drained. If the case be one in which the hemorrhage is still active, the ovarian and utero-ovarian arteries should be ligated. In cases of lithopædia within the ligament, the same operative treatment should be instituted. In cases where the fœtus has grown to full development in this position, the operation should, if possible, be made immediately at the close of false labor, when the life of the child may be saved. These cases should also be treated by the abdominal incision. After the abdomen is opened a careful inspection and palpation of the sac should be made before incising it, so as to avoid cutting through the placenta, or in any way disturbing it. After thus carefully deciding the best point of incision, and packing sterilized pads around the tumor, in the abdomen, to protect the viscera from the flow of amniotic fluid and debris, an opening large enough to admit of the extraction of the child is made, and the child removed, and the cord tied and cut, allowing the placental end to bleed. The sac should be sponged perfectly dry, the cord, which has ceased to flow, cut short close to the placenta, a large Martin self-retaining rubber drainage



tube passed through the thinnest part of the wall into vagina, by means of forceps thrust through from the vaginal side, after which the inside of the sac may be dusted with iodoform, the abdominal incision in the sac closed with a continuous suture of aseptic kangaroo tendon or catgut, and the abdominal wound closed completely, after removing the abdominal pads. The vagina should be loosely packed with iodoform gauze, which it is best to change about once in three days. The end of the tube should be surrounded with sublimated gauze, or absorbent cotton in large quantity, and carefully changed as often as necessary to keep the outside dressings dry. The placenta will begin to disintegrate in a few days, and will be gradually discharged. Antiseptic solutions may be injected if necessary, and if symptoms of septic infection develop, the vaginal opening may be enlarged where free drainage is required. In all cases of this kind the placenta must not be disturbed, for if it is, the most uncontrollable hemorrhage will result. If the placenta be so situated as to preclude drainage through the vagina without injuring it, the opening in the sac should be sewed to the lower part of the abdominal wound and drainage maintained at that point. The vaginal method is, in the writer's opinion, preferable, as it has the benefit of gravitation and permits of the complete closure of the abdominal incision, thus to a great extent obviating the danger of subsequent hernia. This method is advocated by A. Mar-

tin and the abdominal route by Mr. Tait.

Electricity has been used to kill the fœtus and I believe it may be successfully used for that purpose, and if the end of the difficulty were always reached with the cessation of the life of the fœtus, the agent would be a very valuable one, but as the placenta has been known to grow and rupture after the death of the fœtus, and as the remains of such inert material often give rise to serious trouble, and also because this agent can only be used to any advantage before the rupture of the sac—and these cases are rarely diagnosed—this treatment is of no practical value to the scientific surgeon, and should be relegated to those who cannot themselves undertake abdominal surgery, and who practice in such out of the way places as to preclude obtaining the services of surgeons skilled in this kind of work. Cases two and three illustrate the necessity of operation, even after the death of the fœtus.

The history of the cases operated on by the writer are as follows:

CASE ONE. *Intra-peritoneal Rupture.* Mrs. M., age thirty-nine years, mother of one child several years old. I saw her on February 22, 1895, when she gave the following history: Without thinking of being pregnant, she began to have too frequent and almost continuous menstruation about three months before, and about a month later, had an attack of sharp pain with faintness. A physician was called who administered morphia hypodermically. Since that time and

up to the day I saw her, she had a number of such attacks all treated in the same manner, with the addition of the application of hot poultices, and had been up and around the house most of the time. On the morning of the day on which I saw her, Dr. F. L. Newman, of this city, was called, made a prompt diagnosis of the case and sent for me. Her face was moderately pale, pulse 120, but regular and of fairly good quality, abdomen considerable distended and tender to touch in lower part. Percussion showed tympanites and some free fluid within the abdominal cavity. The cervix was soft, os open, uterus slightly enlarged and emitted a very dark bloody discharge with slight odor. A slight indistinct enlargement was felt at the left of the uterus. No tumor resembling a hæmatocele could be felt in the pelvis. Dr. Newman's diagnosis was confirmed and an immediate operation advised, which was consented to by the patient, and she was carefully moved to Harper Hospital, in the ambulance of that institution. As there had been no very recent symptoms of rupture, and her bowels were quite constipated, I deferred the operation until the next day for the purpose of freeing the alimentary canal, which was accomplished with seidlitz powders and enemata. On admission the temperature was 100.4°, pulse 132, and on the morning of operation, temperature 99.8°, pulse 118. On incising the peritoneum the blood spurted out as if under pressure and [the whole peritoneal cavity, from diaphragm to rec-

tum, seemed packed with clotted and fluid blood. Clots of various ages, as shown by the different gradations in color, some even being almost white, were present and many of the old ones were very intimately adhered to the omentum. The tube containing the rupture, with part of the membrane protruding through the rent, was easily brought to the abdominal opening, ligated and cut away. No foetus was found. After ascertaining that the other tube and ovary were normal, the douche of warm normal saline solution was used and an attempt was made to clear the abdomen of the clots, but after working as I deemed prudent—too long as it proved—there seemed to be yet a large amount of clotted blood tangled up and adherent to the omentum, but as it seemed unwise to attempt the further necessary manipulation for their removal, the clots were left, the excess of fluid quickly removed by syphoning it by inverting the douche tube, and the abdomen closed without drainage. During the operation strychnine and nitro-glycerine were used hypodermically and a pint of normal saline solution injected into the subcutaneous tissue of the chest. After placing the patient in bed, good reaction came on by application of heat, and when I left the hospital her pulse was good, and she had every appearance of having passed all immediate danger.

The nurse, who was constantly with her, reported that this favorable condition continued for about two hours, when, without warning, sudden pallor

of the patient's face was noticed, and she immediately expired. In going over the history of this patient, the only questionable point of technique to my mind, was the rather extended effort to remove the clots, and I thereupon decided that in the next case of a similar character, I should trust to the peritoneum to take care of them. Such a case did not present itself until July 22, 1896, when Dr. J. K. Gailey called me in consultation, and an opportunity was given of giving the latter plan a trial. Between these cases however, I had two others, each of a different character, the first of which was case two.

CASE TWO. *Extra-peritoneal Rupture and Pelvic Hematocele.* Miss W., age twenty-one, gave a history of irregular menstruation and a great deal of pain in right side of pelvis for over two months. She had consulted several physicians without relief, and about three weeks before I saw her, had come under the care of Dr. J. K. Gailey, who had been treating her in Harper Hospital up to the time I saw her, which was on October 29, 1895. It was not possible to get the patient to admit the possibility of pregnancy as the beginning of her troubles, but the history of menstruation, the irregularity of which began with a rather protracted attack of menorrhagia, suggested ectopic pregnancy. Her temperature had been from 100° to 101° while under Dr. Gailey's care, and the pain had been such as to require opiates quite regularly. Abdominal examination revealed a firm tumor, situated in the right side of

the pelvis, extending from the median line to the crest of the ilium; and rising slightly above the level of the pubis; no distention of the abdomen or fluid in the cavity. By vaginal examination the tumor was found to extend low down in the pelvis, only very slightly movable, slightly concave or flat, on its under surface, and seemed to lie very close to the uterus, which was somewhat enlarged, hard, and quite fixed by the growth at the side of it. A diagnosis was made of probable ectopic pregnancy with rupture into the broad ligament and death of ovum, or possibly a sarcoma in the same situation. Abdominal section was advised, and the operation took place the following morning. Temperature before operation 100°, pulse 115. On opening the abdomen the tumor was found to be covered with peritoneum at all points and as the anterior surface seemed quite thick and unyielding, a softer and more yielding point was sought for and found on its posterior side, near its junction with the uterus, where an opening with the index finger was easily made and rapidly enlarged when a large quantity of clotted blood escaped. On further examination of the cavity a hard round mass as large as a hen's egg was discovered apparently unattached, and was easily removed. This proved to be the placenta rolled up into a compact mass. The cavity was sprayed dry and no hemorrhage being apparent, after removal of the appendage of the opposite side, which was found to be diseased, the glass drainage tube was

passed into the bottom of the cavity, and the abdomen closed with buried kangaroo tendon sutures. The patient recovered well from the operation and made a somewhat slow recovery, owing to some suppuration in the drainage tube track, and was discharged November 27, 1895.

CASE THREE. *Unruptured Tubal Pregnancy.* Mrs. F., aged twenty-five, a patient of Dr. P. I. Wagner, of Sand Beach, Michigan, entered Harper Hospital, January 15, 1896, and gave the following history: Several years ago had a pelvic inflammation with formation of abscess, which discharged into the vagina. Since then had been well and had not been pregnant, as far as she knew. Present attack began three months before the examination, and three weeks after passing over her menstrual period. At this time she flowed very freely, passed some clots and something apparently like membrane, and had a great deal of pain in the right side in the region of the ovary. Since then she had been confined to her bed the greater part of the time, suffering almost constantly with pain in the side and having a constant slight rise of temperature. Patient was very thin and showed she had lost much flesh. Abdominal examination revealed nothing abnormal, excepting a point of great tenderness in the right ovarian region. Vaginal examination showed uterus slightly enlarged and empty. Fallopian tube and ovary apparently normal, and an elongated, hard, small tumor, evidently extending from the uterus to the ilium, on the right side,

and situated quite high in the pelvis, and somewhat movable. A diagnosis of unruptured, but dead, ectopic pregnancy was made and abdominal section advised, and after a consultation with Dr. Wagner, the operation was made on January 18, 1896. The tumor was found to be formed by the greatly distended fallopian tube, which was adherent to the pelvic wall by very thick and strong adhesions. It, with the ovary was removed intact, and the abdominal wound closed by buried kangaroo tendon sutures. The patient made an ideal recovery, and left the hospital three weeks after the operation.

On opening the fallopian tube removed, it was found to be a perfect specimen of a seven weeks gestation, with everything intact, even to the amniotic fluid. The ovum had evidently been killed by a slight hemorrhage, the clot of which was found outside the membranes.

CASE FOUR. *Intra-peritoneal Rupture.* Mrs. C., age thirty-six, married less than a year, no children. On July 17, 1896, was taken with labor pains, as she supposed, as she considered herself two months pregnant. Fearing a miscarriage as there was also some bloody discharge from the vagina, Dr. Gailey was summoned, and gave an anodyne, which quieted the pain. Three days later the same pain recurred during the night, when a messenger was sent to the doctor's office and medicine procured, which again quieted the patient, who afterwards reported that during the night she passed some membranous material<sup>1</sup>



from the vagina. The next day Dr. Gailey was hurriedly summoned and found his patient in collapse, suffering from pain in the abdomen, blanched face, sighing respiration and thready pulse. He then suspected the true condition of affairs, summoned the ambulance and had her removed to Harper Hospital, where he summoned me to see her that evening. I found the patient exhibiting all the signs of exhaustion from hemorrhage—lips and conjunctivæ bloodless, respiration sighing, patient restless and anxious, abdomen distended only moderately, and percussion demonstrated free fluid in the peritoneal cavity. The uterus was slightly enlarged, not soft and fluctuating, cervix soft and os open. No tumor could be discovered by vaginal examination, but the uterus was slightly fixed and a doughy mass could be indistinctly felt at the left of the uterus. There being no doubt of the diagnosis of intra-peritoneal rupture of ectopic pregnancy, immediate operation was advised, and as soon as preparation could be finished, the section was made. The operation took place at 11 P. M., and was quickly accomplished, as the appendage was easily reached and removed. The abdomen was full of blood which was removed only so far as was necessary to obtain a free field for operative work. The abdominal incision was closed by buried kangaroo tendon suture without drainage. On admission, temperature was 99.4°, pulse 118. During the operation transfusion, strychnia and nitro-glycerine were used, as in case one, and the

patient's body heat was conserved by the use of rubber bags of hot water upon which the patient rested. After operation, beside the usual application of heat, the patient received four ounces of beef tea per rectum every hour for ten hours. The reaction was good, and the patient showed no signs or symptoms of heart failure that carried off my first patient. She continued to gain in strength, but toward the end of the first week developed some fever, stitch abscess in wound occurred, face and whites of eyes became somewhat jaundiced, and a dull pain in the left side between the crest of ilium and floating ribs, was complained of. By the twelfth day a good sized cystic fluctuating tumor was made out at this point, the aspirator used, and twenty ounces of sweet-smelling fluid, resembling the fluid blood in the peritoneal cavity at the time of operation, was removed. The patient felt much relief, but, as fluctuation was still present, the aspirator was again used on the fourteenth day, and sixteen ounces of fluid withdrawn, which appeared thicker and a light pink in color. As a small collection could still be detected on the sixteenth day, the aspirator was again used, and four ounces removed which had every appearance of pus. After this the patient continued to improve and left the hospital on August 22, 1896, feeling quite well. In this case the patient's life was saved, but the technique was apparently faulty in the matter of drainage. The specimen removed showed the ovum had developed in the distal end of the

tube, which had torn after the dilatation of the fimbriated opening.

**CASE FIVE.** *Intra-peritoneal rupture.* On August 17th, 1896, I was called by Dr. D. O. Donovan, of this city, to see Mrs. O. age 31, who presented a history very similar to case 1, in that she had had recurring intraperitoneal hemorrhage for several (5) weeks before coming under my care. Five weeks before I saw her, and two weeks following a delayed profuse menstruation, she was suddenly seized with pain in the lower right side of the abdomen, with a feeling of great faintness, as she was in the act of rising from her bed in the morning. She was a good deal prostrated for several days after this, but seemed to recover and was up and about the house, and even went out previous to the next attack, which occurred about a week after the first one. She did not recover so well after this, and began to suffer from constant pain and increasing weakness, and shortly she had other similar attacks, when she became too weak to leave her bed, and almost complete stoppage of the bowels occurred. A well known practitioner saw the patient twice with Dr. Donovan, and at the last consultation suggested that a specialist in diseases of women be consulted. The patient presented a very anæmic appearance, but the face did not exhibit that blanched appearance so noticeable in cases suffering from the immediate shock of intraperitoneal hemorrhage. The pulse was 112, soft and compressible, temperature 100°. Abdominal examina-

tion showed tenderness on pressure, or movement, some distension, tympanites, and free fluid in the peritoneal cavity. Vaginal examination showed cervix large and soft, uterus somewhat enlarged, hard and fixed by an exudate that could be felt on each side and in the posterior cul de sac. Diagnosis of ectopic pregnancy with rupture of tube and slow hemorrhage into the peritoneal cavity was made, and abdominal section advised. She was sent to Harper hospital in the ambulance that evening, and all the next day a persistent effort was made to evacuate the bowels, but with only very slight success. The operation was made on the second day of her admission, August 19th. On admission, temperature 100.3°, pulse 120: morning of operation, temperature, 98.5°, pulse 100. The abdomen was found to be full of blood, which was rapidly cleared from the pelvic cavity with fingers and sponges, when the uterine appendages of both sides were found to be quite firmly adhered to adjacent structures. The ruptured tube was found to be on the right side, and was with the ovary, freed from its adhesions and removed. While manipulating the tube, the small fœtus, apparently of about ten weeks growth, floated out with the blood and clots and was secured. The appendage of the opposite side was liberated from its adhesions, and being apparently healthy was not removed. The blood occupying the abdomen above the pelvic brim was not molested. A coil of small intestine of very dark color was held by the pel-

vic adhesions, and when liberated assumed its natural color. No apparent inflammation of peritoneum above the pelvis was observed, and no plastic lymph was present to denote the presence of peritonitis. A glass drainage tube was inserted and the wound closed by *en masse* silk worm gut sutures. The patient received the supporting treatment mentioned in the other cases of intra-peritoneal hemorrhage. Reaction was good and patient had very little febrile action until the afternoon of the second day, when the temperature suddenly rose to 103.3°, pulse 130, but in the evening subsided to almost normal, after nine, immense watery and exceedingly offensive evacuations of the bowels. The freeing of the loop of intestine had evidently let loose the pent up collection of many days.

Much bloody fluid was removed through the drainage tube which, was kept in for three days. After this the patient made an uneventful recovery, and was discharged September 19, 1896.

*CASE SIX Ruptured Interstitial Ectopic Pregnancy.* Mrs. B., age 24, married five years, one child four years ago, and not pregnant since. Last menstruation occurred eight weeks before operation. A little more than two weeks before I saw her, while perfectly well and believing herself normally pregnant, while sitting quietly knitting, was suddenly seized with a sharp pain in the middle and lower part of the abdomen, and was very weak and faint for about four hours. In a few days was feel-

ing quite well again, but in two weeks after first attack was again seized with similar pains and faintness, and on the fourth day afterwards the abdomen began to distend, and pain and faintness increased. She was at first attended by the physician in the country, where she was when first attacked, and by her family physician upon her return to her home, here, in the city, and by both physicians had been treated for threatened abortion. About an hour before I saw her Dr. C. G. Jennings, was called to the case and immediately made the diagnosis of ruptured ectopic pregnancy, and sent for me. I found the patient to all appearance dying, with face absolutely colorless, closed eyes, sighing respiration, and no radial pulse, A very hurried examination by abdomen and vagina was made, which revealed distention of the intestines by flatus, free fluid in the abdominal cavity, os uteri open, cervix soft, body of uterus indistinct in outline, and no tumor or exudate felt around it. Owing, however, to the critical condition of the patient, and the evident correctness of Dr. Jennings' diagnosis, no very critical physical examination was attempted, which, while being a necessary omission, was unfortunate as the case proved to be one of the interstitial variety, which because of its rarity, would have made a valuable study in physical diagnosis. Still the omission cannot be regretted, as the patient has her life, and science might not have gained enough to compensate for its loss. The case was not a promising one and as we had to admit

to the family the probability of the patient dying in the ambulance on her way to the hospital, the chance of even a trial to save her life seemed very slim for a time, but the family at last consented and she was soon in a room in Harper hospital. Before leaving her house, and after arrival at the hospital, while hurried preparations for the operation were being made, strychnia, nitro-glycerine and digitaline, were used hypodermatically and a small amount of normal saline solution was injected into the rectum. — Operation at 10:30 P.M. Just before the operation a faint flicker of the radial pulse could be felt, and *during the operation* it became more perceptible, which was doubtless partly owing to the cellular transfusion of saline solution, which was begun at the commencement and used during the operation. A large amount of blood was found in the abdomen, which was treated as in the last two cases, by removing only enough to free the site of operation. On passing my fingers down to first the right tube, and then the left, and finding them apparently normal, I was for an instant puzzled, my fingers then suddenly slipped into a cavity in the back of the left side of the fundus of the uterus, and I then knew I had to deal with the most rare and dangerous variety of ectopic pregnancy—the interstitial. Quickly placing the patient in the Trendelenburg position, the rent was easily seen, and lying beside it the little foetus, which was carefully removed; passing in my index finger the cavity was found to

be almost as large as a walnut, and still partially filled with the membranes, which were scraped out with the finger. A kangaroo tendon ligature was then passed through the broad ligament close under the Fallopian tube, about half an inch from the uterus, then again through the ligament, hugging the uterus closely, about an inch below the insertion of the tube, and made fast. This was for the purpose of cutting off the utero-ovarian arterial anastomosis, and was successful, as no blood flowed from the opening in the uterus after it. Four deep sutures of the same material were then used to close the cavity in the uterus. Both ovaries and tubes appeared perfectly healthy, so they were not removed. A glass drainage tube was inserted, and the wound closed by silk worm gut *en masse* sutures. *The patient was in better condition at the close of the operation than at its commencement,* and from that time she improved constantly and made an ideal recovery. The rectal feeding with beef tea was pushed to its utmost for the first twenty-four hours, and strychnia, hypodermatically, was freely used. Patient was discharged October 10, 1896.

CASE SEVEN. *Five weeks pregnancy in distal extremity of tube, unruptured, but bleeding through dilated vestibule. Old pus tube complication.* On December 30, 1896, I was called by Dr. J. Howiecki, of this city, to see Mrs. D., age 40, married fourteen years, mother of two children, the last one born six years ago since



which time she had not been pregnant; menstruation regular, until six weeks before the present attack, when the last natural period occurred. Ten days before I saw her, while walking on the street, she was seized with a sharp pain in the lower part of the abdomen and became faint, but was able to take a car and get home by herself. Flow from the uterus soon commenced, and pain became continuous. The flow continued moderately for several days, and sometime during it the patient reported that she passed some membranous substance but did not save it, after which the flow became somewhat less, and when I saw her it was scarcely noticeable. She looked very anæmic, but not blanched with excessive hemorrhage, pulse fairly good, at 100, temperature 99°, which latter Dr. L. said had been the height of temperature since the attack began. Some tympanites were present, tenderness on pressure in lower part of the abdomen, but no free fluid could be detected in the abdominal cavity. On vaginal examination the uterus was found to be fixed, slightly enlarged and empty: it was freely open, and an irregular mass could be out-lined that filled the posterior cul de sac, and the whole left side of the pelvis. The right tube and ovary could not be palpated because of the sensitiveness of the parts. This mass felt so much like an old exudate that the patient and her husband were questioned further regarding her past history, but averred that she had had no trouble previously in that side. As patient had been

taking opiates and the bowels seemed full, a cathartic was ordered, and a visit made the following day, after which the diagnosis of ruptured ectopic pregnancy was made and operation advised. This diagnosis was made almost entirely on the history of the case, as the nodular mass was doubtless a complication and an unknown quantity. The patient was removed to Harper hospital that afternoon, and the operation performed the next day, January 1, 1897. Late in the evening of her arrival the temperature was 102°, and pulse 88, and on the morning of operation, temperature 99.2°, pulse 88. On opening the abdomen in the usual manner, a small amount of fluid blood and some clots were found. The omentum was adhered to the mass on the left, as was also the descending colon. After liberating the omentum a gauze pad was placed under it and the intestines, and, with the patient in the Trendelenburg position, the colon adhesions were separated; they were very tough and evidently of long standing, and when torn through, odorless pus welled up freely from the pelvis, which was carefully sponged out until no more appeared. The mass was then enucleated from its bed of adhesions and proved to be an old pus-tube. A fine specimen had been found, but the diagnosis had not yet been verified, so the other tube was searched for, which was quickly found and presented a fusiform enlargement at its outer end. On its removal the patient was placed back in the dorsal position, the pelvic cavity flushed with normal saline sol-

ution, the abdominal pad removed, a glass drainage tube placed in the cavity from which the pus-tube had been taken, and the wound closed with *en masse* silk worm gut sutures. The patient rallied well and made an uneventful recovery, as far as the operation was concerned, and left the hospital January 28, 1897. She had a slight aortic insufficiency, which was recognized before the operation, and her urine was also examined (as is customary with all of my patients before operation) and found to be normal, but a few days after the section the urine was found to contain blood, albumen and casts. The patient then said she had had several attacks of the kind before, but never consulted a physician for it. The condition of the urine was much better when she was discharged, but still contained albumen and casts. On examination the impregnated tube was found to contain the ovum in its distal extremity, and the hemorrhage was due to the partial separation of the membranes, the blood leaking into the peritoneal cavity through the fimbriated end of the tube, the mouth of which was greatly distended as though the ovum were in the process of expulsion through it into the abdominal cavity. After the patient's recovery she was again questioned regarding her past history, as the pus-tube was a positive indication that a link in the history was missing, and it was then ascertained that when she was seventeen years old before her marriage, she had had an attack of pelvic inflammation. That pus-tube had

evidently been quiescent all\* these twenty-three years, and its immensely thickened walls indicated also that it had.

### *Pathology.*

Case 1—Ruptured tube and ovary with membranes.

- .. 2—Placenta rolled into a hard ball, as removed from the broad ligament.
- .. 3—Unruptured tube laid open, showing fœtus attached by umbilical cord.
- .. 4—Tube ruptured at the distal end, which had become dilated
- .. 5—Ruptured tube with fœtus, ovary.
- .. 6—Fœtus with portion of membrane removed from cavity of uterus in the case of interstitial gestation.
- “ 7—Tube with ovum intact in outer end of tube: the dilated mouth of the tube laid open, showing ovum.

### RECAPITULATION.

#### *Diagnosis.*

1—In examining pelvic affections of women of fruitful age the *possibility* of ectopic pregnancy should always be in the mind of the examiner.

2—A sudden attack in such a woman of sharp pain in the abdomen, attended with faintness from which the patient does not soon recover, as from ordinary faintness, should direct attention to ectopic pregnancy as a possible cause.

3—Distension of the bowels by

flatus is characteristic of intra-peritoneal hemorrhage.

4—Free fluid in the abdominal cavity can usually be demonstrated by percussion with change of position, in cases of intra-peritoneal rupture.

5—The presence of intra-peritoneal blood cannot be satisfactorily demonstrated by vaginal examination, as can the hæmatocele held tightly within the folds of the broad ligament, while in the pelvic and abdominal cavities the blood floats loosely, and except in rare instances, imparts no characteristic sensation to the examining fingers.

6—Pelvic hæmatocele, not of traumatic origin, is almost certainly always the result of a ruptured ectopic pregnancy (I say "almost" wholly out of consideration for the opinions of observers of larger experience than myself.)

7—A low febrile action, which is out of proportion to the other symptoms, is characteristic of ruptured ectopic pregnancy.

8—General peritonitis is not a result of ectopic pregnancy.

9—The discharge from the uterus of a decidua is a valuable sign, and when accompanied by unusually irregular menstruation is still more so.

#### *Treatment.*

1—In all cases of intra-peritoneal rupture, operate as soon as a diagnosis

is made, and do not wait for reaction to occur. Support such patients before and during operation by application of heat to the back and extremities, transfusion of normal saline solution, rectal use of beef tea and saline solution, and strychnia, nitro glycerine, and digitaline hypodermatically.

2—If the hemorrhagic blood cannot be quickly removed, let it alone, and use drainage. Do not flush the abdominal cavity to remove blood. The peritoneum will absorb the blood with much less danger than is caused by such manipulation.

3—Use silk worm gut *en masse* sutures to close abdominal wound in cases where there has been great loss of blood, as the buried animal material is not readily absorbed where such depletion had occurred.

4—Extra-peritoneal hæmatocele is usually self-limiting, and will almost always result in the death of the fœtus and the recovery of the patient.

5—In cases that go on to full term operate at the end of pregnancy to save the child. Operate through abdomen; drain through vagina and leave placenta to come away by disintegration.

6—Electricity should be used only in cases that are so situated as to preclude the possibility of securing proper surgical treatment.

## FACTS AND FANCIES IN OUR WORK.\*

*Some Remarks to the Medical Society of the State of New York,  
January 26, 1897.*

BY JOSEPH EASTMAN, M.D., LL.D.

INDIANAPOLIS.

Some years ago the distinguished editor of a London medical journal was asked if he was acquainted with a certain famous surgeon. His reply was "Yes, we were class-mates in college together, and I distinctly remember him as the gentleman who had a propensity for getting his fancies mixed up with his facts." What was intended as a reflection upon this great worker in our special line of practice is equally applicable to very many; in fact none of us could plead wholly innocent of the charge. For when our fancies had been tested in the crucible of truth we found among the dross but an atom of gold to place upon the common altar of science for the benefit of mankind. It is ever thus in every realm of being and in every field of science. The law of progress is a law of change; change from the crooked to the straight, from the complex to the simple, from the false to the true.

## THE UTERUS.

More than thirty years ago Dr. Bennett, of London, wrote a book on *Inflammation of the uterus*. He discoursed in a scholarly manner on inflammation and ulceration of its cervix; also gave a treatment based

upon the pathology as he fancied it, and discoursed on the treatment of ulceration of the cervix by caustics. The facts as pointed out by Emmett, show these conditions to be due to abrasions and lacerations incident to parturition. I examine the pelvis of a patient who has been waiting in my reception parlor. I find a uterus a third larger than normal, a bilateral laceration of the cervix extending well towards the vaginal attachment, the lips everted and intensely granular. I find the left ovary prolapsed into Douglas's cul-de-sac and very sensitive. I find the right ovary and fallopian tube united in one common mass as large as a hen's egg. The woman is forty-two years of age; had two aunts die of cancer of the uterus. The case furnishes material for thought. Bennett would no doubt have given her some relief, as he suggests the use of nitrate of silver; that failing, the acid nitrate of mercury or the still stronger caustic potash. Hodge, of Philadelphia, would have given her some relief by splitting the cervix, the swollen lips producing a stenosis interfering with drainage. Emmett would have given her some relief by paring out the cicatrices and closing the laceration with silver wire. All would have produced local depletion. Thomas de-

\*This paper, by request of the President of the Society, was written in the interests of the general practitioner.



clared that we must have a comprehensive knowledge of all the pathological conditions; that a congested and hyperplastic uterus must sooner or later become displaced; that a catarrhal condition of the cervix would result in venous congestion and increased weight of uterus and displacement; that a suddenly produced displacement would result in the same pathological conditions. Emmett in a latter edition of his work also declared that lacerations of the cervix were comparatively harmless without a resulting septic cellulitis causing subinvolution. The closure of many a lacerated cervix has done good by local depletion. A wave of surgical fancies crept over the country. Every gynaecologist was closing lacerated cervixes and disregarding Emmett's statements, they closed cervixes in cases where the uterus was twice its normal size from increase of connective tissue, their depletion following the operation doing a little good, their closure of the cervix counteracting all the good done and more too by interfering with proper drainage, and many women were left no better, even worse, for the surgery done. The facts are, the operation was brought into disrepute by lack of comprehension of the pathology as pointed out by Thomas, Emmett and others.

#### CELIOTOMY AND THE OVARIES.

With all these fancied theories and well established facts, these cases such as I have described were yet incurable until removal of incurable organs in pelvis and abdomen became

part of our work, and the study and research of Pasteur and Lister had been utilized by Keith, and the torch [lighted by McDowell in the midnight darkness had shown forth in this bright morning dawn of abdominal surgery. When Keith was asked to explain the cause of his success which astonished the surgeons of the world, including such men as Sir Spencer Wells, he pointed to the jars containing the products of his drainage tubes, letting facts, not fancies, answer for themselves. We still believe that the wise use of the drainage tube and of gauze packing is in accordance with well established facts, and that no good can come from ignoring the marvelous results obtained by their judicious use. The great principles originating with Pasteur and enunciated and practically applied by Lister are at last being brought from the complex to the simple. Many a life has been sacrificed by depending upon fancied chemical sterilization of hands and instruments, neglecting the mechanical sterilization, the soft soap, soft water and softened elbow grease by much trituration of microbes. Thermal sterilization, the simplest of all, by which the old family syringe or any other instrument or dressing can be given a temperature of 212° in boiling water in the castle or in the cabin, is the ABC of the science and sense of antiseptis and asepsis. Mechanical and thermal sterilization are replacing chemical sterilization; the latter in fact has a narrow field of usefulness.

There is another point worthy of consideration when we are preparing to make an operation and desire the most complete asepsis. The distinguished Dudley, of Lexington, Ky., had a firm and abiding faith that the patients must be sterilized inside as well as outside. Today many operators fancy that the patient has good kidneys when a careful chemical and microscopical examination of the urine shows neither albumen, sugar nor tube casts. In many of the patients upon whom we operate for chronic diseases, especially those of neurasthenia, there is a deficient excretion of the solid constituents of the urine. This demands our inquiry quite as much as the presence of albumen or sugar. At all events, if the patient is sterilized internally by drinking large quantities of warm soft water for several weeks before the operation, thus priming all the pumps of digestion, assimilation, secretion and excretion, and giving more tone to the capillary circulation, we will find that the wisdom of Dudley contributed quite as much to surgical success as the knowledge of chemistry and microscopy of the day.

When the teaching went forth in our surgical literature that the abdomen could be opened with impunity, what fancies flitted across the surgical mind. The removal of ovaries in such cases as I have described, in a woman surely beyond the possibilities of child-bearing no one would condemn; but what a vast army of doctors fancied that their road to fame and fortune was as cloudless

as a ray of sunlight. With as little comprehension of pelvic pathology as Bennet had of lacerations of the cervix, some sought to cure everybody by the removal of the uterine appendages. The uterus, something like the parrot, will do the talking for every organ of the body and mimic every disease in the encyclopedia of pathology. The pelvic organs are as dials upon which are expressed the ills of the entire body in many of the neuroses. How few of us can positively differentiate between profound neurasthenia expressing itself in the pelvic organs, and diseased pelvic organs causing and maintaining profound neurasthenia. That a few all around abdominal surgeons have climbed to prominence by experience gained in removing uterine appendages, I affirm: but that the sacrifice of ovaries in their early experience was commensurate to the benefit of the woman, I deny.

#### VAGINAL HYSTERECTOMY FOR PELVIC INFLAMMATIONS.

A few who were not satisfied with their results in removing the products of pelvic inflammation by the abdominal route would teach us that in going by the vaginal route and removing the uterus together with the products of inflammation they have made a great advancement. If the uterus is incurably diseased in a woman near the menopause vaginal hysterectomy is a precious relief. But to destroy the pelvic floor and vaginal vault by removing the uterus when the diseased appendages and products of inflam-

mation could as well be removed by skillful hands by the abdominal route, is a butterfly of surgical fashion unworthy even the French caterpillars from which it emanated.\* In operations for pelvic inflammation I find at least four in five cases the vermiform appendix diseased badly enough to justify its invagination or removal, (often adhered to pelvic mass). This I cannot do by vaginal route. In three cases acute appendicitis has followed celiotomy when the appendix was not removed. Contact of air by the vaginal route would do the same.

#### VAGINAL HYSTERECTOMY FOR CANCER.

There are many facts in connection with vaginal hysterectomy with which the general practitioner should be more fully conversant. Cancer of the uterus is often the outgrowth of prolonged localized irritation originating in old neglected, badly cicatrized lacerations. Vaginal hysterectomy when made by an expert is a means of saving the lives of many women (fifty percent) who only a few years ago were destined to die the most horrible death from a disease so loathsome that in their dying hours they felt compelled to isolate themselves from those near and dear loved ones whose fond caresses would have been such a comfort.

The success or failure of the operation is determined by early or late diagnosis. A foolish but time-honored fancy is that the "change of life"

causes the bloody or watery discharge from the uterus and causes pain and emaciation. We must wake up to the fact that a woman may be far advanced in cancer of the uterus without having any pain and with very little discharge, and we especially must teach the practitioner, and they their patients, that if they have anything but a symptomless cessation of the menstrual flow, the question of menopause must be disregarded and a scrutinizing examination made, to the end that the facts may be known and the blessings of science, of surgery and of sense be vouchsafed to womankind.

Dr. Bryce, of Brooklyn, N. Y., in a very able paper read before the American Gynecological Society, does Dr. Joseph Price, of Philadelphia, and myself, either the honor or dishonor (as the case may be) to refer to our statistics, and states that the frequent publication of so-called hysterectomies, always to the exclusion of many disastrous cases, has wrought incalculable evil, so much so that it is doubtful if it were not better for womankind, not less in a strictly medical sense, had not the statistics of Price and Eastman, Leopold and Kaltenbach of Germany, never seen the light of day. "Because", says he, "the results have been such that the operations have been undertaken by those less skillful." He refers especially to the 114 vaginal hysterectomies made by myself where the average period before the return of the disease was detected was two years. Permit me to say that it is

\* Especially the technique packing in gauze to hold up the intestines when eight times out of ten we can close wound as in celiotomy.

not a matter of indifference how vaginal hysterectomy is made for cancer: but that the same principles hold true which governed Dr. Samuel W. Gross in the removal of the cancerous breast. He taught that not only the entire breast be removed in one solid mass, but that every gland which could be reached, diseased or not, should be removed at the same time. In other words, that we must go wide of the disease to give the patient every possible hope. That not only the cancer but subjective glands in which the cancer might be lurking, be removed. That women will recover with a uterus removed for cancer in the French pick-axe and stump-digging way (if I might so characterize it) with the hole from which it is removed packed with gauze to keep the intestines from falling out, I affirm; but that such operative technique gives as great assurance that the disease will not return as when done by a definite anatomical technique with the wound closed as

now become a back number. The literature which he has been reading has taught him that the appendix, having originated all his former cases of peritonitis, must be dispensed with, and the sooner that is removed the better. The patient has been getting worse gradually for ten days, with well marked localization of the inflammatory process. He calls me with the expectation that I will open directly the peritoneal cavity, wade through fat and pus, among intestines distended to their utmost with gas, and if I only reach the appendix and remove it his patient will recover. If there is any class of men who seek after truth and not fiction, for facts and not for fancies, it is the hard-working, every-day, all-round family physician. He may not have so large a head, but if he has a large clientage he surely has a large heart and a warm and heartfelt interest in his patients. I cut down near spinous process of ilium, plunge the handle of this knife through the cellular tis-



in celiotomy, I deny.

#### APPENDICITIS.

My doctor friend who calls me in consultation, has been reading his medical journal: has read of appendicitis and its cure by "an inch and a half of incision and a week and a half in bed." He fancies that his medical treatment (under which some of his patients have recovered) and his opening of pericæcal abscesses must

sue between the muscle and peritoneum, turn it sharply upwards. A pint of pus escapes. I pack with tube and gauze. The doctor asks, "Have you found the appendix?" I answer, "The cæcum is the roof of the abscess, and I do not wish to break its attachments until the patient is out of the crisis." I saw an interrogation point in the doctor's eye and imagined him saying, "Any village doctor could



make such an operation and save a life."

I note that the very ablest surgeons in the State and States where I do consultation practice, are the most inclined to concede that abdominal surgery as a specialty, has a legitimate field. They appreciate, as does the celiotomist himself, that it is difficult enough to make a diagnosis in either of the three great cavities of the body, but especially so in the abdomen. From my standpoint it would seem that there is no subject in all medicine or all surgery which the practitioner is so anxious to receive light upon, as when to ask for surgical aid, in appendicitis and obstruction of the bowels.

The questions of abdominal tumors, strangulated hernia and gunshot wounds have received a great amount of attention. Physicians have so often called me when they fancied they had one condition, and the facts were they had another, that it led me to discourse more at length upon this subject. After verifying our external examinations by abdominal section more than a thousand times, we confess that we are often deceived, and thus have abundant charity for those who occasionally call us to operate in cases where no operation should be thought of. And again they call us to operate when the day of grace has passed by and the precious moments of the patient, when an operation would have saved life, had been taken up in administering medicines.

The intestinal tube from pylorus to anus, has for its function secretion,

excretion, and expulsion of its contents. There are questions anatomical, physiological, bacteriological and mechanical as well as pathological, to be taken into consideration with reference to nearly every case. It has been shown that the alimentary canal contains a large variety of the most active and poisonous of bacteria. The staphylococcus and streptococcus have been detected in a comparatively healthy alimentary canal. The common bacillus coli seems to be ever present, and in perforating appendicitis these micro-organisms have ready escape into the peritoneal cavity. It is also true that where peritonitis, involving the coat of the intestine, has existed for 48 hours, and where no perforation exists, these various forms of bacteria may and do escape through the weakened coat of the intestine. When to operate then becomes the most important question in connection with the subject of appendicitis. If the symptoms are not decidedly modified in from 40 to 48 hours, we may fear such weakened conditions of the coat of the bowels as will endanger the patient from escape of poisonous bacteria into the peritoneal cavity and surgical advice is needed. If we have no opportunity of seeing the case until later than this, primary operating is usually out of the question and we can only wait for a secondary operation after the products of inflammation and the destructive changes produced by the bacteria have been localized and circumscribed by the formation of an abscess. Pus may be found within a few days, hence

the case should be carefully watched. The general practitioner believes that he has handled many cases of appendicitis with hot fomentations and medicines. Whether to trust to medicines or surgery let the surgeon take the responsibility of deciding, not that fatal compromise surgery when medicine fails. They used to tap ovarian cysts and give the patients marked relief. If perchance it was par-ovarian the cyst never filled. So occasionally appendicitis treated medicinally never recurs; but the chances are that most of the cases treated medicinally become cases of recurrent appendicitis, and after a second attack they will in all probability have an unlimited number of attacks. If in the future all cases were to be either submitted to medicines alone or to early surgical interference, an interference before bacteriological infection of the peritoneal cavity, or when the resulting inflammation had been circumscribed by pus formation, or in the intervals between attacks of recurring appendicitis, I am certain that we should save many more lives on the surgical route than on the medical. So far as surgery is concerned, however, its wise application to the particular stage of the disease will determine its success or failure.

#### INTESTINAL OBSTRUCTION.\*

In nearly all cases of appendicitis we have obstruction of the bowels varying in degree from the mere torpor to absolute adynamic obstruction. Some of these cases advance insid-

iously, the practitioner scarcely differentiating between rapidly advancing pathological conditions until the abdomen is so distended with gas that examination becomes very unsatisfactory and we are liable to overlook other forms of obstruction. In acute cases, where symptoms come on suddenly, such as strangulation by bands or through apertures, volvulus, intussusception, in chronic cases where there have been previous signs of intestinal obstruction, with strictures, with disease of the walls, cicatricial or neoplastic obstruction in the lumen by neoplasms, gall-stones, enteroliths, etc., repeated examinations must be made.

† In this field of practice diagnosis holds the highest rank among the branches of the healing art because it is the most difficult, it is the most useful. We must first accumulate all the subjective symptoms, arrange them in their proper order and draw such deductions from them as we can. Then the most careful effort in obtaining objective signs should be made by inspection, palpation, auscultation and percussion. ‡ I would particularly call attention to bands of organized and inflammatory material. What a large number of post-mortems show evidence of pleuritic adhesions. Greig Smith says in language eloquent because of its being so true to nature :

“Those of us who have been into the abdomen many hundred times

† In this case my signs were plain and unmistakable.

‡ Two-thirds of the cases of volvulus are in sigmoid flexure. Volvulus of small intestine is rare.

\* In England alone 2000 die annually from obstruction excluding strangulated hernia.—TREVES.

are quite familiar with the conditions originating similarly from the serous membrane of the abdomen. Such bands vary greatly in length, density and thickness: sometimes they are round, often flat. Not infrequently several bands exist together. The attachment of these bands present an almost endless variety. Frequently one end is attached to the mesentery, the other being inserted into any part of the peritoneum. Strangulation takes place either by the bowel slipping under the band, in which case it must be comparatively short: or by the bowel being caught in a twist or loop of the band, when it must be long. Sometimes the obstruction is caused by the band dragging on the bowel and so causing kinking. The modes of constriction are so bewilderingly varied, that it is impossible to classify them."

Of course the floating intestines make the adhesions of serous membrane stretch out very different from similar products of inflammation in the chest. The frequency of peritonitis in childhood, in youth and in middle age has been under-estimated, and since opening the peritoneal cavity so many times we are just beginning to appreciate how frequently intestinal colic has really been a localized peritonitis with adhesions of serous membrane elongating into bands and strings by the floating intestines, rendering the patient susceptible to intestinal obstruction. Of course the vermiform appendix and fallopian tubes flapping about from one point to another are

themselves as bands which may snare an intestine, become adherent to it or to some other band the product of peritonitis with adhesions. At the very onset in cases of obstruction of the bowels, let the diagnosis be as carefully made as possible, and if operation is to be considered, let it be operation, and never that fatal compromise, operation when drugs fail. This is the point I would like to make above all others for the reason that so many treat all cases of abdominal pains and intestinal obstruction in a sort of a routine way. Heretofore, operations for intestinal obstruction have had a fatality of between sixty and seventy per cent. In Greig Smith's last thirty cases he had only six deaths. At all events, the fatality in the obstruction without operation is even greater than in strangulated hernia without taxis or surgery. If we are to operate upon cases after hours and even days of purgations and medical abominations have been poured into the patient's stomach, in cases of absolute obstruction from volvulus, from intestinal intussusception, from strangulation, bands, enteroliths, gall-stones, etc., we will have a high rate of mortality. "Purgatives always do harm and yet they are used nine times out of ten." (Greig Smith). Careful observation at the beginning of these pathological conditions mentioned would enable us to operate with a comparatively low rate of mortality. We are no more to countenance the use of purgatives in any of these conditions mentioned than in strangulated



ENTEROLITH, Weight 28 grammes ; Diameter  $1\frac{1}{2}$  inches Length  $2\frac{1}{2}$  inches.





hernia. In the latter conditions there are external manifestations of the obstruction; in some of the conditions named the clinical history and objective signs are unmistakable evidence which will justify operative procedure. We ought to know that our hands are clean, what we are going after, where we expect to find it, what we are going to do with it, and be prepared to expect the unexpected. One may take strangulated hernia as a standard by which to compare his cases of obstruction of the bowels. The sudden onset, the absence of fever until septic peritonitis is present, the pain from obstruction in any part of the abdomen may, however, be reflected to the umbilicus. To emphasize the point, I quote from Frederick Treves: \* .. With regard to the location of sensation in the intestine (and we will consider particularly the small intestine), it must be remembered that the length of the bowel is very considerable; that the coils are perpetually changing their position and altering the mutual relation they bear to one another; and that the part is not very directly supplied with spinal nerves. If the passage along the intestine of a foreign body, capable of exciting pain throughout its whole progress, were a matter of daily occurrence, then in time it might be possible for an individual to localize painful sensations in certain vague segments of the gut; but even such an experience could never enable anyone to localize

a pain in one very limited portion of a tube that is many feet in length. I have pointed out that no matter in what part of the small intestine the obstruction is situated, the pain arising therefrom is very usually referred to the region of the umbilicus."

The reverse and intense peristaltic action which produces the vomiting in complete obstruction emptying the proximal side of the fluid, leaving percussion sound characteristic of fluid on distal side, is often a guide to the very seat of constriction.\*

While abdominal viscera have not the language with which to express their ills like the viscera of the chest, auscultation, as a means of determining the gurgling, rumbling sound on the proximal side of the constriction, where the peristaltic wave literally hurls against the obstruction, is of great value and should never be neglected. I know of no condition in the chest where the stethoscope will decide such momentous questions involving almost immediate life or death.

Percussion gives the different shades of resonance over the seat of the colic-like pain, the change of percussion note on the distal side of the pain, the tympanic resonance, intense high pitch over intestines distended with gas. The sound elicited over the fluid when the distended intestines have lost their vitality and the secretions have accumulated either in the lumen of the intestine or in the peritoneal cavity; all give valuable

\* Jackson prize essay, Royal College of Surgeons of England, 1883.

\* In intussusception blood in rectum can usually be found by introducing finger.

testimony. Let no one fail in diagnosis for lack of effort many times repeated. The use of soda and tartaric acid in the form of seidlitz powder, may sometimes give us a hint as to the locality of the constriction by suddenly exciting peristalsis and distending the stomach; placing the patient in the knee-chest position to allow a reverse upward traction upon the colon and small intestines, at the same time with a large fountain syringe filling the colon may give us a proper clue. We should exhaust every means to determine whether the case is one of complete obstruction, and that too in a very few hours, and not allow a precious life to slip through our hands, and let the favorable moments for a successful abdom-

inal section flit by while we note a little colored water washed out of the colon, or while waiting for the effect of compound cathartic pills or croton oil. Who would ever think of giving these cathartics in strangulated hernia? The reason we do not, is because we can know to an absolute certainty that there is obstruction, and that this must be reduced by mechanical and not medical means. I plead for the same skill in differential diagnosis in abdominal conditions as are obtained by auscultation and percussion in disease above the diaphragm. I do not claim that we have yet reached that precision in diagnosis, but our efforts must be in that direction and our rewards will be ample.

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### HISTORICAL NOTE.

*Translation from Gomorra "Sanhedrin," (Page 33), by Cecilie Shershafsky, Boston*

During the reign of King Kajus of Ancient Rome (C. Julius Caesar), 1900 years ago, Rabbi Farfon was at the head of the Jewish Congregation of Lud, a city in Palestine.

At this period it happened that a cow was slaughtered for household purposes, and on the ritual examination it was discovered that the uterus had been extirpated.

As an abnormal case it was brought before Rabbi Farfon for decision, and he being of the opinion that the extirpation of the uterus in an animal would prove fatal to its life in less than one year, decided that the flesh of the same should not be used by the Jews, nor should it be sold to other nations.

He based his decision on the corresponding law of the Talmud which declares the flesh of an animal, which shows any lesion or any loss of its

organs that will prove fatal to its life in less than one year, is to be prohibited to the use of the Jewish nation. With regard to this case an appeal was made to the authorities of Yame in Palestine, who contradicted the decision of Rabbi Farfon, and declared the flesh of the animal in question permissible for the use of the Hebrews. In support of their sentence the knowledge of Rabbi Tudos, a doctor of medicine, also an inmate of their college was called in to evidence. He stated the fact from his own experience, that at that time, no cow nor female pig was sold into foreign lands without having an extirpation of the uterus previously performed, and no disturbance to their length of life or health have ever been noticed, even after one year.

## INTRAVENOUS INJECTIONS OF ARTIFICIAL SERUM IN PUERPERAL HÆMORRHAGES.

BY ALFRED GORDON, M.D.

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PHILADELPHIA.

The washing of the blood, proposed and experimented by Drs. Dastre and Loyer\* in 1889, used in treatment of cholera, employed by Hermann Sahli (of Berne) † in typhoid fever and some other maladies, has lately given very successful results in hæmorrhages.

It is very well known that when a large amount of blood has been taken away from the organism, the result obtained either by introducing into the vascular system a certain quantity of salt solution or by transfusion of blood is almost the same. Therefore the salt solution became a usual practice in surgery.

When it is possible to act on the source of hæmorrhages, ligatures or forceps are marvelous agents, but in some cases, as intestinal hæmorrhages in typhoid fever, hæmoptysis, metrorrhagia, it is impossible to have recourse to the same means of hæmostasis. A priori one might fear the use of salt solutions, because they elevate the pressure of the blood in the vascular system, while the decreased blood plays a great role in hæmostasis. In fact, this danger does not

exist, because the injections of salt solutions possess the capacity to render the blood more coagulable. Prof. Hayem\* through his remarkable experiments had stated this fact, that for increasing the plasticity of the blood injections of salt solutions act more energetically than transfusion. He even affirms that the complete blood is the least active of all fluids which could be injected into the vessels. Consequently where the coagulability of the blood seems lessened, one may use a defibrinated blood or a serum: and the solution of Na. Cl. (0.7 per 100) is one which gives the best results. Prof. Delbet† performed a certain number of experiments, where after having bled dogs and injected successively salt solutions into the vessels, he rendered the blood so plastic, that it coagulated instantly after it left the vessels.

Moreover, the last author concludes with Hayem that these intra-vascular injections could be used as hæmostatic in cases where the hæmorrhages are only going to take place and even as a preventive remedy in some cases.

At the last Congress of Surgery held in Geneva, Dr. M. J. Reverdin read a very interesting report on the

\* Dastre et Loyer. Le lavage du sang dans les maladies infectieuses. Bull. Loc. de Biologie 1889, p. 261.

† Hermann Sahli. Die Answaschung des menschlichen Organismus und über die Bedeutung der Wasserzufuhr in Krankheiten. Klin. Vorträge N. 11 Nov. 1890.

\* Hayem. Du Sang de et ses alterations anatomiques. p. 444.

† Mourette. Thesis, Paris. 1896.



hæmostatic action of Sodium Sulphate, and in fact the majority of the authors interested in this question used solutions containing 7 grm. of Na. Cl. and 7 grm. of  $\text{Na}_2\text{SO}_4$ . Is the last salt really the cause of the modification of the plasticity of the blood? Dr. Hayem affirms that even a simple solution of Sodium Chloride has the same effect. We wish to report the following case, which, we may say, will encourage every physician to use the saline injections on similar occasions:

On the 2nd of January, '97, I was called in consultation to a woman who in consequence of an abortion had a hæmorrhage which none of the usual means could stop. Previously the attending physician had used several hypodermic injections of Ergot, vaginal douches of hot antiseptic solutions, but vainly. I found the patient in very bad condition: pulse imperceptible, body cold. Immediately we covered the patient, administered alcohol, hypodermic injections of ether, ligatured the limbs and made successive vaginal injections of hot water. For a short time the patient's general conditions seemed to us improved, but the bleeding continued and the patient became again cyanosed and the pulse got weaker. Vaginal examination proved the cervix slightly opened, but further exploration could not be accomplished owing to the patient's alarming conditions. I then proposed to my colleague to use injections of salt solution. An order was given the druggist to prepare a 7 per 1000 solution of Na. Cl.

and we injected in the basilic vein of the left arm one quart of the fluid. To our great astonishment we had the utmost pleasure in observing that the patient's face got immediately colored, the pulse reappeared and we may say the patient began to be resuscitated as soon as the fluid had been injected. We administered a new vaginal douche. The hæmorrhage lessened, but did not stop entirely. After an interval of 30 minutes the patient began to fall in collapse again. A new intravenous injection of one quart of the salt solution was administered, which was followed by a vaginal hot douche and the patient got well again. One hour later we saw that the hæmorrhage had stopped almost entirely, but the patient was not yet in desirable conditions. We injected this, the last, time two quarts of the solution which definitively saved the patient. The hæmorrhage stopped so that we did not use the vaginal douches any more. The patient made a good recovery. The only accident we observed during, and in consequence of, the injections was some cerebral excitement and a slight elevation of the temperature.

I want to call attention to the technique we used in our case, which we believe is recommendable to anyone who cannot have promptly the necessary instruments and who is compelled to act rapidly. Having no regular apparatus at our disposal and having no time to lose, we had recourse to the following combination: to an ordinary Pravaz's syringe we adjusted a needle of a larger size, the

piston was taken away. One end of a rubber tube was put on the end of the syringe, deprived of the piston, and the other in communication with a bottle containing the solution. The needle was introduced rapidly in the vein, the bottle elevated at a height of about fifty centim. It is understood that all antiseptic precautions were taken.

This case which is in fact remarkable from the evident and prompt effect of the salt injection, added to those reported by various authors, proves the similarity of the effects of the salt injection (artificial serum). The spectacle is indeed very striking: while death is threatening, an injection produces a veritable resurrection: pulse becomes regular and strong, face gets colored, the patient who feels alive begins to speak and thanks us. Those who could be present would have faith in those injections. Even if death is inevitable, have we not a powerful interest in such circumstances to delay it even for some hours? It is especially in such urgent cases that the intravenous way seems to us preferable. It assures a more rapid effect, because the absorp-

tion is more rapid; moreover, the direct afflux of the salt solutions is not without a certain immediate influence upon the nervous centres. In ordinary cases the subcutaneous way can be used. Sahli (Berne) and Duret (Lille) have lately utilized it and obtained brilliant results. In our estimation the intravenous injections are tolerated easily, as is proved by the case reported.

A necessary condition of success is the regular function of the kidneys. With diseased kidneys the injections are useless and even obnoxious. The case reported by Dr. Fernet \* showed that at the autopsy the kidneys were found sclerotic and atrophied; the injected solution could not be eliminated and infiltrated the organs.

The injections can be used in different ways, but it is useful sometimes to combine both the intravenous and the subcutaneous injections, and, what is very important, to repeat the injections frequently and at short intervals.

We will terminate by saying that no woman should die from hæmorrhages without an attempt having been made to save her, by means of the injection of a large quantity of artificial serum into the veins.

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NOTE.—It is proper to state that thorough tamponing of the vagina with iodoform gauze had been performed several times, without success, by my colleague before my arrival.

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\* Fernet, *Semaine Me'dic.* 5-9 96.

# DEPARTMENT OF PÆDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

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## ORIGINAL COMMUNICATIONS.

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### DIPHTHERIA.

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BY FRANK L. MORSE, M.D.

*Late Assistant Physician to the South Department of the Boston City Hospital.*

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The development of the science of Bacteriology in the last few years, with special reference to the origin and treatment of diphtheria, has so changed the course of this disease, that it is now no longer the dreaded malady to both children and adults, and the great source of anxiety to the attending physician, which it formerly was.

In 1883, and still later in 1884, the bacillus which caused diphtheria was discovered and studied by Klebs and Loeffler, and recent developments confirm their investigations as to the source of the disease; but it remained until a later date for investigators, to find by additional bacteriological research a remedy with which to treat the disease, which by its almost universal adoption at the present time, has repeatedly demonstrated its success.

The introduction of diphtheritic antitoxine dates back about four years, and although it has only been in use at the Boston City Hospital for about two years and a half; statistics

from cases treated before and after its introduction, show conclusively that it is an invaluable specific for the disease. This is especially so of the cases treated at the south department since its opening in September, 1895. From this date until October, 1896, a period of thirteen months, there were one thousand nine hundred and seventy-two cases of diphtheria treated, with a mortality of only 13.3 per cent. These cases were all true cases of diphtheria, clinically, with membrane, most of them being also confirmed by a bacteriological examination of the secretions of the throat.

On the other hand, before the use of antitoxine, an analysis of the cases treated at the Boston City Hospital proper, from 1891-1895, in ward E., shows a total of one thousand seven hundred and sixty cases, with a mortality of 43.1 per cent. By a still further examination of the cases treated at the south department it is found that seventy deaths occurred in the first twenty-four hours after admission, and that thirty eight







more died in the second twenty-four hours. Deducting these cases, most of whom were apparently hopeless at the time of admission, the mortality is reduced to 10.3 per cent, and 8.4 per cent, respectively, surely an invaluable argument for the advocates of antitoxine.

The antitoxine used in the Hospital has been that manufactured by the Boston Board of Health, and has invariably proved of a high quality. As is generally the now accepted rule it has been administered by the standard of units, one thousand units being the ordinary dose in a given case of a child two to five years of age, with a moderate amount of membrane on each tonsil. This has been increased to fifteen hundred units in a child five to ten years, and two thousand units in an adult with the same proportionate amount of membrane. As to the extent of membrane as covering each tonsil, uvula, and palate, the dose increases relatively to the amount of membrane present. To children under two years of age the dose varies from one hundred units to a child one month old, upwards to one thousand units at two years of age; but in all cases, the amount of antitoxine injected depends upon the amount of membrane rather than upon the age of the patient.

The repetition of the antitoxine is indicated in many cases but is rarely repeated in the first twenty-four hours. If the membrane has become sharply defined or undermined around the edges, or has commenced to roll

off in places, unless very extensive in amount, the antitoxine is not repeated. If on the other hand the membrane has extended to the uvula or involves the soft and hard palate, or if there is much glandular enlargement, with a marked septic odor and a profuse nasal discharge, a second and even third or fourth injection may be given at intervals of twenty-four hours each. In all cases, however, after considering the age of the patient, the repetition and amount of antitoxine injected is dependent upon the amount and character of the membrane. Of the nineteen hundred and seventy-two cases investigated, one hundred and seventy cases received a second injection, twenty four cases a third injection and two cases a fourth, and it can be said that in no instance has any ill effect ever followed the injection of the antitoxine.

*Albuminuria* has appeared in this series of nineteen hundred and seventy-two cases, six hundred and seventy-four times, a percentage of 34.1, and if a number of other cases are included, such as those where a specimen cannot be obtained either on account of the patient's age or involuntary micturition, the percentage is raised to the vicinity of 40. The amount of albumen present has varied from the slightest possible trace to one-eighth and one-fourth per cent. and has in many cases shown in addition to a hyperæmia the presence of an acute nephritis, with casts and blood in the sediment.

On account of the introduction of antitoxine in the treatment of diph-

theria, a still more careful examination of the urine has been necessary in answer to the arguments of the opponents of antitoxine. They claim that it increases the amount of albumen present, that it causes an additional irritation of the kidney on account of the introduction into the blood of a foreign albuminous matter, and that it produces fatal anuria in some cases. Careful examination both in regard to the clinical aspect of the patient and to the clinical examination of the urine before and after the injection of the antitoxine, fail to corroborate any of the above theories, and no case of suppression of urine has occurred as a result of the antitoxine. One hundred and seventy-five cases have been examined before and after the injection of the antitoxine; in one hundred and seven, the urine was negative in both instances; in thirty-three cases the amount of albumen present remained the same; in twenty-five the albumen was diminished, and in sixteen the amount of albumen was increased. It has also been noticed that when the albumen was increased in amount, the cases without exception have been severe types of diphtheria, and that the increase in albumen, was invariably due to the toxic products of diphtheria, circulating in the blood and not to the foreign albumen contained in the antitoxine serum. On the other hand the diminution in the amount of albumen has been marked, and has promptly followed the injection of the antitoxine. In one case there was one-fourth per cent. before antitoxine, in twenty-four

hours it had been reduced to a slight trace, and in three days was entirely negative. There does not seem to be any reasonable doubt but that the antitoxine serum not only limits the extension of the diphtheritic membrane in the throat, but also arrests the products of the diphtheritic poison in the general system.

The method of procedure in these cases has been to obtain a specimen before the injection, the second specimen being obtained twenty-four hours later, and further analyses at frequent intervals. It has been obviously impossible to examine the urine both before and after the injection in every case, for in some instances antitoxine was injected before admission to the Hospital, and in others the antitoxine being injected immediately after entrance, no specimen was obtained. Of those analyzed, however, the results seem to show that antitoxine is not contra-indicated by the condition of the kidneys in any case, and of the large number of injections which have been given at this Hospital, no unfavorable results have followed in any case.

*Antitoxine rashes* have occurred in two hundred and forty-four cases, and a recurrence of them in nine cases.

By the statistics collected, the rashes seem to depend directly upon the amount of antitoxine injected, that is, the severer cases receiving a second and third dose of antitoxine being more liable to an eruption than the milder cases receiving only a single dose. Of the cases with membrane on each tonsil only, and the great majority of whom only received one dose,

12 per cent. had an antitoxine rash. Of those who had a more extensive membrane, and many of whom had a second dose, and also some a third injection, 15 per cent had an eruption. Of those who appeared with a second eruption all of them had had a second injection of antitoxine.

The character of the eruptions has been the most puzzling of any of the complications due to antitoxine. There have been a number of cases in which the eruption assumed the appearance of a well marked urticaria with typical wheals, and in this class there was usually no doubt as to the diagnosis. In some of the cases the distribution of the eruption, has been peculiar, the urticaria assuming a symmetrical arrangement on either side of the body. All of these were usually accompanied by itching and burning of the skin, but no constitutional disturbance. Another class of cases, and perhaps the most important from a diagnostic point of view, are those in which the patient develops a general erythematous blush, at places assuming a somewhat punctate appearance, and which disappears entirely, usually in the course of from eight to twenty-four hours. It is in this class of cases that it is of obviously the greatest importance to differentiate from scarlet fever and this is particularly the case in a contagious hospital, where, if it is scarlet fever, other patients will be exposed to the disease.

The time of the appearance of the eruption is of course of some importance, but as the incubation

period of scarlet fever varies so considerably in many cases, and has no fixed period, while most of the antitoxine rashes appear at about the end of the first week, an eruption appearing from twenty-four to seventy-two hours after admission with a punctate appearance would more likely be considered scarlet fever than one due to antitoxine. Other points of importance in a diagnosis, if the eruption is one of scarlet fever, have been the presence of an eruption on the palate, the redness and dryness of the palms of the hands and the soles of the feet, the rise in temperature, the presence of vomiting—this symptom occurring in about 80 per cent. of all cases of scarlet fever, the rash beginning about the neck and upper part of the chest and extending downwards and being confirmed in a few days by the appearance of desquamation. If on the other hand the eruption is due to antitoxine there will be no eruption on the palate, no redness or dryness of the palms and soles, usually no rise in temperature, or vomiting, and the appearance of the rash on any part of the body, which if it extends does so in no definite manner. The desquamation which is characteristic of scarlet fever does not of course occur in these cases.

Another class of rashes are those which by their papular appearance closely simulate an eruption of measles, but as the incubation period of this disease is more definitely fixed than that of scarlet fever, and as the cough and conjunctivitis usually precede the eruption, the diagnosis is



easier. There is also if the rash is due to antitoxine little or no suffusion of the eyes, no cough, no eruption on the palate, and the initial lesions of this eruption may appear on any part of the body, while in measles the rash appears behind the ears and on the neck and chest and extends downwards. If due to antitoxine, it will have disappeared in from twenty-four to forty-eight hours, at which time a measles eruption would be at its height.

The rashes due to antitoxine have also assumed various other forms. Cases have been observed in which it resembled an eruption of *timea*: others where it had the appearance of rose spots, and in two instances the eruptions have been remarkable on account of their character. In one of these it was a true *eczema* involving the greater part of the trunk, and also the head. It persisted for about ten days and then disappeared completely. It was accompanied by scales and crusts, but not by the usual amount of infiltration expected from the extent of the process. The other eruption commenced as a diffuse erythema of various parts of the body and was quite general in character. It persisted rather longer than usual, but the diagnosis of its being an antitoxine rash was never questioned. As it faded it assumed a marked hemorrhagic type, and over various parts of the body were seen these large black and blue areas as if due to some external violence. They all however faded in a few days.

Combinations of these several eruptions have occurred and it is not un-

usual to observe a macular or papular eruption with a diffuse erythematous blush and sometimes accompanied by an urticaria on the same patient.

A typical erythema multiforme has been observed in a few cases and an erythema or an urticaria have been also observed, localized at the point of the injection of the antitoxine.

These rashes are always interesting to observe, occasionally hard to diagnose, should always be isolated in questionable cases, and usually disappear in from twenty-four to forty-eight hours.

The time of the appearance of the antitoxine rashes has been particularly interesting, and also very instructive when a diagnosis is to be made; especially when the rash simulates an eruption of scarlet fever. The earliest cases appear on the second day after the injection, but it is rather unusual to expect any rash until the fourth day, and most of them appear at about the end of the first week or ten days. The latest appearance has been on the 27th day as observed in cases staying in the hospital; but one case has occurred when the patient was discharged from the hospital on the sixth day after entrance, but returned three weeks later with an urticaria, and in two months and three days later with a second well marked urticaria. Second urticariæ may of course appear at any time, but the experience in the hospital shows that they most likely appear at about the end of the second week, between four-teen and twenty days.

The septic rashes of diphtheria are

also sometimes seen but not as frequently as before the days of antitoxine, and are usually present only in those cases which have gone untreated from the outset of the disease and are markedly septic on their admission to the Hospital. The rash is usually a diffuse general erythematous blush which appears suddenly, thus resembling an antitoxine erythema, or in exceptional cases it is a coarse punctate eruption, too coarse however to simulate scarlet fever, and in one case it has been hemorrhagic in character. They can usually be differentiated from other rashes on account of the profound septic condition which the patient presents. Following the administration of the sulphate of atropine for its stimulating action it sometimes happens that a flush appears, usually upon the face only, but occasionally extending so as to involve the whole body. It thus may resemble an antitoxine rash, a septic rash or an eruption of scarlet fever, but the history of the administration of the drug is an important matter and will usually decide whether the rash is or is not due to the use of atropine.

*Paralysis*:—The cases which have been complicated by paralysis have been considerable in number, and they also illustrate the uncertainty of the course of the disease in the most emphatic manner. Although usually following the more severe forms of the disease this is not invariably the rule, as one case has occurred with cardiac paralysis which had only laryngeal symptoms present with no diphtheritic membrane present in the fauces.

It has been frequently said by the opponents of antitoxine in their arguments against its use that paralyzes are much more frequent since its introduction than previous to it. Such however has not been the experience of this Hospital. Before the use of antitoxine, in a series of cases collected by Goodall, there was one hundred and twenty-five cases of paralysis in a total of ten hundred and seventy-one cases, a percentage of 11.6. In this series of nineteen hundred and seventy-two cases there have been a total of one hundred and forty-five cases of paralysis, a percentage of 7.3. These cases have been divided according to their situation into sixty-four cases of palatal paralysis, fifty-one of cardiac paralysis, thirty-one of whom died, fifteen of paralysis of the legs or arms, seven of general muscular paralysis, five of absent knee jerks, two of ocular paralysis and one of ptosis.

Palatal paralyzes have occurred in sixty-four cases, twenty-nine of which, or nearly half, appeared when the case presented membrane covering each tonsil, uvula and palate. There is practically no danger to life in such cases unless complicated by other forms of paralysis, particularly that of the heart, but they are invariably a source of annoyance to the patient. They are characterized by the patient having a nasal voice in talking and also by liquids taken by the mouth being regurgitated through the nose. The latter symptom may reach such a limit, and particularly is this the case in small children, that

the patient will not get enough nourishment to regain its strength and gradually fades away. It is in this class of cases that nasal feeding must be resorted to, and the child fed at stated intervals, and in this way the paralysis gradually disappearing the child finally recovers.

Of far more importance, however, are the cases of cardiac paralysis, where the actual life of the patient is always in danger, and the majority of those affected do in fact usually succumb. As in the previous class of paralysis those cases having the most extensive membrane furnish the larger number of cases of paralysis. A patient with a large amount of membrane comes into the hospital: it is given the usual medical treatment and an injection of the antitoxine. The membrane may in fact be so extensive that a second and third dose may be necessary and the membrane gradually disappears from the throat. But the real danger to that patient is still to come in the form of cardiac paralysis. The patient may even be so far in the convalescent stage that he is sitting up out of bed, when, suddenly he is overcome by faint feelings or tingling sensations in various parts of the body, the extremities become numb, vomiting follows, the pulse becomes weak, rapid, irregular and intermittent, and in spite of all the restoratives used promptly and subcutaneously, he dies. In some cases where the nerve degeneration is not as marked, the patient rallies to some extent, but the vomiting and other symptoms continue. In this

class of cases the strength of the patient must be kept up by stimulative enemata with the hope that in a period of time varying from ten days to three weeks the nerves may regain their lost power and the patient may have a chance of recovery. Absolutely nothing must be given by mouth while any symptoms of nausea or vomiting persist, and by carefully watching the patient, recovery sometimes takes place. These cardiac cases are always to be considered in all severe cases of diphtheria, and anticipated if possible, when the first symptoms appear, by the strictest care and treatment. They occasionally get well, if they survive the usually quick onset of the symptoms; they more often appear in older children and adults, but none are exempt; antitoxine may lessen the severity and diminish the number of attacks, but will not prevent them. Goodall reports that diphtheritic paralysis never occurs before the seventh day, the cases of death occurring before that time and attributed to cardiac failure, being directly due to the toxic effects of the diphtheritic poison on the nervous centers. His latest case occurred on the forty-third day, and in this connection it is interesting to report a rather unusual case of the same kind.

A male patient twenty-five years of age, in good general condition, entered the hospital on January 11, 1896, with a well marked attack of diphtheria, having a moderately extensive membrane on each tonsil and involving the soft palate.

There was only slight prostration present and he was given an injection of two thousand units of antitoxine. The same dose was repeated on the following day and the membrane began to roll up, and on the seventh day the fauces were entirely clear, only a moderate amount of congestion remaining. He received the usual amount of medicinal treatment and everything was progressing favorably until the seventh day, when the pulse rate suddenly fell from seventy-six beats to forty-four and its character became very irregular and intermittent. This was accompanied by a considerable amount of constitutional disturbance with marked depression. Suddenly on the 25th, or fourteen days after entrance, the pulse rate which had remained between forty and fifty for seven days, jumped up to one hundred and fifteen and the patient went into a collapse. Subcutaneous injections of ether and brandy with nitroglycerine had their usual stimulative effect, and he responded slightly to them. Vomiting also accompanied this attack but he was given iced champagne at frequent intervals, and in small amounts, some of which he retained. He remained in much the same condition for forty eight hours, when there was a slight improvement shown which continued from day to day. There also developed marked palatal paralysis with a nasal voice, and regurgitation of liquids through the nose, which, although adding to his discomfort, did not really oppose his recovery. On the forty-first day

he was able to sit up out of bed, and an ultimate recovery was strongly looked forward to, but on the sixty-fourth day the pulse rate suddenly started up to one hundred and fifty, was weak, rapid, and irregular, he failed to respond to stimulation, he became semi-conscious and died. Goodall's latest case was the forty-third day, but in this case cardiac paralysis resulting in death occurred on the sixty-fourth day.

These cardiac cases, although being usually accompanied by a high, weak, irregular and intermittent pulse rate may at times have an exceedingly slow pulse. One case had the pulse rate as low as twenty-eight beats to the minute, and others have occurred at thirty-two and forty beats respectively, all of which proved fatal, and, so, although making a prognosis on an almost fatal case, it can be said that those cases where the pulse rate rises are more favorable and may get well, while those in which it falls very rarely or never do.

Of the cardiac cases which have died, autopses have only been permitted upon two, and they have both demonstrated the supposition that there is a degeneration of the nerve fibres themselves, which produces the paralysis with also a certain amount of muscular degeneration. Sections of nerves taken also from the sympathetic system, and semilunar ganglion together with the pneumogastric and splanchnic nerves show marked nerve degeneration.

Paralysis of the legs, or arms, or both, have occurred in fifteen cases in



which the knee jerks were absent. They have come on during the convalescent period, after the membrane had entirely disappeared, and perhaps in the cases of paralysis of the lower extremities, would not be recognized until the patient tried to get up. They were usually preceded by numbness or of tingling sensations, described by the patient as such as are produced by pins and needles, with considerable muscular tremor, and then followed by a loss of power. As in other paralysis the time of onset was about from ten to twenty-one days, the lesion prevailed for a variable length of time, but always disappeared with convalescence.

General paralysis has been noticed in seven cases, all of whom were severe cases, three with extensive membranes, the other four being cases of intubation, accompanied also by membrane in the fauces. The paralysis was complete, the patients being practically unable to help themselves. They are a particularly sad class of cases, helpless and hopeless. All of them died.

The knee jerks have been tried in most cases, and although they may have been absent at one time or another during the course of the disease, they were present at the time of discharge with the exception of five cases. These cases presented no other unusual symptom at the time of discharge, and how much importance can be placed on the absent knee jerks after an illness of diphtheria is still a question.

*Recurrence* of membrane has been

observed in eight cases only, and is most conclusive evidence of the immunity which antitoxine gives to the person in whom it is injected, when compared with the cases treated before the time of antitoxine, when the reformation of membrane was of frequent occurrence. It is still a more notable fact, that in these eight cases positive cultures from the throats persisted until the appearance of the new membrane, when a second injection of antitoxine being given, the membrane and also the organisms disappeared. It illustrated the fact that a patient is not well from diphtheria, until the Klebs-Loeffler bacilli disappear from the throat, according to a bacteriological examination, and that while they do persist this person is a source of infection to other persons who may be exposed to him.

*Epistaxis* has occurred in twenty-four cases of diphtheria, in most of whom the hemorrhage was so severe as to necessitate plugging either the anterior or posterior nares or both. Taken by itself alone it is not a serious complication, for the hemorrhage can usually be controlled, but in connection with an extensive membrane in the fauces, marked glandular enlargement and a strong septic odor, it means that the membrane has extended to the nares, and having become dislodged, hemorrhage from the mucus membrane has taken place. It is a rather unfavorable symptom, as in this class of cases twelve of the twenty-four have died, not from the result of the hemorrhage itself, but from the septic effects of the diphther-

itic poison. It is in itself a manifestation of the serious condition of the patient, and an unfavorable prognosis should be given in most cases where the hemorrhage is profuse and constant. There are a number of cases where a slight hemorrhage may occur after the irrigation of the throat and nose, on account of the dislodgement of a small amount of membrane, or from ulceration of the turbinate bones: but these cases must not be confounded with the severe septic cases with glandular enlargement present.

The presence of *subcutaneous areas of ecchymosis* over various parts of the body, is another indication of the grave condition of a patient seriously ill with diphtheria. They usually appear at about the end of the first week or later, and vary in size from a split pea to the area of half a dollar, and are usually of a blueish black color, very closely resembling the ordinary form of subcutaneous ecchymosis due to traumatic violence. The origin cannot be definitely stated, but in all probability it is an impairment of the circulatory system produced by the toxic effects of the diphtheritic poison. Nothing can be done to prevent their occurrence, which usually happens in those particularly septic cases which have gone untreated from the first appearance of the disease. Twenty-two cases have been observed with this symptom, fourteen of whom have died, which shows that it is a grave manifestation and one in which an unfavorable prognosis as to the course of the disease should be given.

*Joint pains* in all probability due to the antitoxine have occurred in seventeen cases. Their origin is of course uncertain, but the fact that with but two exceptions they have invariably been accompanied by an antitoxine eruption, suggests a common relation between the two. The joints affected have in some cases been swollen and accompanied by a slight amount of synovial effusion, but they differ from true rheumatic pains in being of a shorter duration, rarely lasting over four or five days in time, and in most cases being uninfluenced by the salicylates given internally. The joints of the lower extremities are more frequently affected than those of the other parts of the body, and unlike the antitoxine rashes they are usually accompanied by a considerable rise in temperature, one hundred and one degrees or thereabouts. They seem to run a well defined course uninfluenced by any treatment, but for the lack of any known specific at the present time, the salicylates have been used with the external application of *Oleum Gaultheriæ*. In the great majority of cases they have had scarcely any influence, and morphine has been given to control the pain. They are uncomfortable and painful while they persist, are usually of short duration, and have no after effects.

*Broncho-Pneumonia* has occurred in one hundred and eight cases, and the fact that ninety-one of them have died, shows its almost invariably fatal result.

All the cases presented the charac-

teristic appearance on physical examination with areas of dulness to percussion and numerous râles with bronchial respiration. With only a few exceptions, they have accompanied the laryngeal cases, which came to operation, and it is to broncho pneumonia that most of the intubation cases have owed their fatal termination. It is an extension downwards into the lungs of the diphtheritic process, and naturally, especially in the operative cases, on account of the membrane becoming dislodged the occurrence of a broncho pneumonia is looked forward to.

The *Bacteriological examination* of the throats in these cases has involved an immense amount of work which however, does not surpass the knowledge which it has given in relation to both the treatment and discharge of the patient. A case enters the hospital with a suspicious but not characteristic looking membrane; it is isolated and a culture taken, when if it is positive, the patient is transferred to the ward and antitoxine given, if negative, the patient is not exposed to diphtheria, the membrane clears off and the discharge of the patient from the hospital takes place in a few days. It is only by a bacteriological examination that the nature of the disease can be decided upon, and the best possible treatment given.

Of nineteen hundred and seventy-two characteristic cases with diphtheritic membrane, in only one hundred cases was the organism not found, and when the many technicalities of taking and examining a culture are

considered, together with the difficulty in obtaining them, particularly from the throats of small children, it can be definitely stated that the organism is almost invariably found in cases with a well marked membrane.

On account of the necessity of waiting twenty-four hours for a bacteriological examination of the throat in a patient with a characteristic membrane, it is not best to await the result of the culture before the administration of the antitoxine because it may mean the life or death of the patient. Inject the antitoxine and confirm the clinical diagnosis by the bacteriological examination, and always remember that with a well marked membrane the presence of a negative bacteriological report is not a contra-indication for the use of antitoxine; that the bacteriological examination has its greatest importance in deciding questionable cases and also as to the time when a patient ill with diphtheria ceases to be a source of infection to the community.

The science and study of bacteriology has also increased our knowledge of the infectiousness of diphtheria and it has been found that in order for a person to have diphtheria the organism itself must be transplanted in one way or another on to an abraded mucous membrane. By a series of experiments carried on at the hospital, it has been found that the Klebs-Löffler bacilli are not present in the air of rooms in which patients are ill with diphtheria, but they have been found on the floor and baseboards of the room, being

thus carried in the sweepings and dustings, which occur daily, from some place which has become infected by the secretions from the throat of the patient.

The method of examining the air of the room has been as follows:

An ordinary aspirator, the bottle of which is partially filled with blood serum, with the tube, into which the air to be tested passes, submerged in the serum, is the apparatus used, and air from the room is allowed to pass directly into the serum for an hour. The air of three different rooms, each of which contained very sick and septic cases of diphtheria, was thus collected, the bottles of serum placed in an incubator for the requisite amount of time, and then cover slip preparations made, in none of which, however, were the diphtheria bacilli found. Other organisms were present, the diplococcus being most prominent.

The laryngeal cases have not always shown the presence of the Klebs-Löffler organism, both on account of the absence of the membrane on the fauces, it being present in the larynx where it is impossible for a swab to reach, for all practical purposes, and also, as happens in many cases, the child is in such a critical condition at the time of entrance that intubation is immediately performed, and for obvious reasons the child is not disturbed to have a culture taken. In many cases, however, at the time of the extraction of the tube, a culture has been taken from the intubation tube, and almost

invariably a positive report has been obtained.

As has been previously stated in regard to a characteristic membrane in the fauces, so in the laryngeal cases with a harsh, brassy cough, impaired voice sounds, obstruction to respiration with dyspnoea and the presence of retraction, do not wait for a bacteriological examination of the throat before injecting the antitoxine, and do not neglect to perform intubation or tracheotomy to relieve the urgent condition in which the patient is, for it is obvious that a negative report may be obtained in spite of all precaution taken.

*Diphtheritic Conjunctivitis* has occurred only in one case of this series, the eye becoming inoculated by the patient carrying the organism of diphtheria from a septic discharge from the nose to the conjunctiva. By the prompt and repeated use of antitoxine however the eye became greatly improved and no injurious effect resulted. The location of the infection upon such an important organ as the eye demands that no measure should be left undone in order for the patient to retain its function, and the antitoxine may be justifiably repeated on three successive days to accomplish this result. Further treatment consists in the use of atropine and frequent washings with sterile water to remove the discharge.

The question of the *time of disappearance* of the membrane is always an important one to both patient and physician, as it is usually a correct indication as to the course of the



disease, and to its final result. It is interesting also to notice that since the introduction of antitoxine the diphtheritic membrane has disappeared from the throat in more than half of the cases on the third, fourth and fifth days of the disease, while previous to its introduction it took about twice this length of time, and cases have been reported where the membrane has persisted until the thirty third day. In only fourteen cases has the membrane persisted for a longer period than twelve days, and in these cases the character of the membrane was not distinctly diphtheritic, only a slight film remaining at the previous sight of the membrane from which negative reports have been obtained. It has however been deemed advisable, and particularly is this the case in hospital practice, not to discharge the patient until the throat is entirely clear of any membranous deposit. It is usually the case that those patients having the least amount of membrane are the first to have it entirely disappear, but this is not always the case, for in one instance when the patient had only a moderate amount of membrane on each tonsil, the throat was not clear of membrane until the twenty-third day.

It is truly remarkable to note the specific effect of diphtheritic antitoxine upon an extensive and sometimes even gangrenous membrane involving each tonsil uvula, soft and hard palates and the manner in which it detaches itself from the mucous membrane of the parts

affected. It has been frequently noted and observed that, in twenty-four or forty-eight hours after the injections of the antitoxine, the membrane becomes sharply defined and begins to detach itself and roll up on the edges. Then by the use of frequent irrigation to the throat, the loose pieces are washed away and the process continuing rapidly, in a few days the throat is entirely clear and it is not surprising to witness the entire melting away of an extensive membrane in seventy-two hours. Furthermore, after the membrane has disappeared there is no ulcerated surface left, upon which new membrane forms, but only a slightly congested, and nearly normal mucous membrane.

The bacteriological examination of patients' throats ill with diphtheria becomes of greatest importance when the membrane has entirely disappeared from the throat and the patients' general condition such that their discharge from the Hospital is to be considered. In a great number of cases the organism disappears from the throat at the same time that the membrane does, and these are the cases which in outside practice with no bacteriological examination would be called well, but in the great majority of cases the organisms of diphtheria persist for several days after the disappearance of the membrane and this time has been prolonged in some cases to weeks and months. These cases, if no bacteriological examination was made, would be declared well and the patients would

associate with other people and become the most fruitful soil for the dissemination of the disease.

It has been the custom at this Hospital, to discharge no patient who has been ill with diphtheria, until two negative cultures have been obtained from the throat on two successive days, and in this way as far as is known at the present time, all possible precautions are taken to prevent the spread of the disease. It will be noticed by an examination of the appended table that it is no unusual occurrence for the diphtheritic bacilli to remain in the throat from ten to twenty days after the disappearance of the membrane, and in one instance it has persisted for 124 days or about four months. It is in such cases as these that a physician's patience is taxed to the utmost. The patient will be perfectly well physically, and yet as the culture is examined on each successive day the bacilli will be found present. All kinds of mixtures and preparations for local applications to the throat are successively tried and still the organisms persist. Guinea pigs are inoculated with a pure culture, and they succumb to the disease in twenty-four or forty-eight hours, and at the present time no reliable drug or mixture has been tried which will kill the germs; they become lodged in the crypts and follicles of the tonsils, grow rapidly, and even frequent irrigations fail to dislodge them. One of the latest preparations used has been a five per cent solution of antipyrine in equal parts of glycerine and water, and in a majority of cases

it has been very effective, the bacilli disappearing usually in twenty-four or forty-eight hours after the applications have been made every two hours. Irrigations of normal salt solution, potassium permanganate, chlorinated soda, myrrh, and corrosive sublimate and local applications of tannic and salicylic acids, and various ointments and sprays fail to give a satisfactory result in all cases after the membrane disappears.

The *laryngeal cases* of diphtheria, always prove themselves of great interest and especially in this case when the statistics before and after the introduction of antitoxine are compared. In the Boston City Hospital, in wards A. and E., for the year ending January 31, 1895, there were 89 intubations and seventy-four deaths, a mortality of 83 per cent. In the south department for thirteen months ending October 1, 1896, there were two hundred cases of intubation with one hundred and seven deaths, a mortality of only 53 per cent. This great diminution in the mortality can only be due to the use of antitoxine, for the great majority of these cases were of the severer type, many being in a collapsed and exhausted condition at entrance and requiring immediate intubation, while a few others were allowed to rest in their cribs for a short time, when if no improvement in respiration appeared they were also intubed. The operation, as is well known, has invariably proved successful in relieving the marked obstruction to respiration, which occurs in laryngeal diphtheria, and within a

few minutes the child would be found asleep and breathing naturally. The operation unlike that performed in England and on the continent, and in certain of the American cities where it is done with the child in the upright position, has been done on an operating table, the patient being in a horizontal position, with a small pillow under the child's shoulders and the head thrown backwards. The child being wrapped securely in a blanket, is thus more securely held than in any other position, and the danger of slipping away from the grasp when in the upright position is entirely obviated. Both positions have been tried, and the recumbent one has always proved the more satisfactory at this hospital.

The question of operation is not usually a hard one to decide upon for the hoarse brassy cough, the impaired voice sounds, the cyanosis, the anxious look of the patient, and the amount of retraction are usually to be observed in a very short interval, but the question of *what* operation is not so easily settled in one's mind. The operation of tracheotomy is of course the older one, and has its particular advantages. It is an external cutting operation, thus enabling the operator to see exactly what he is doing, and it is therefore not a hard operation to perform. Occasionally there is considerable hemorrhage, but that can be controlled by clamps or packing. Another advantage of the operation is that the tube having been introduced into the trachea, it very rarely becomes occluded, and should such an

instance occur any person present could remove the inner tube, clean it, and replace it in a very short time. Another advantage is that it requires no elaborate or special instruments for its performance, the necessary articles for its performance in an emergency being a jackknife and a hairpin, articles which every household affords. Another argument in favor of this operation is that the trachea is opened low down usually past all the laryngeal obstruction and the membrane existing in the trachea, when loosened may be removed through the opening. Its principal disadvantages are the additional shock of the cutting operation in a patient already weakened by a severe disease, and the fact that an external wound is made, which, in spite of all antiseptic measures taken, on account of its location, becomes septic, and a source of absorption into the general system. It is also of considerable difficulty to obtain permission from the parents to perform this operation.

Of ten tracheotomies performed in this hospital in thirteen months, all have died, three on the operating table; the operation being done as a last resort after intubation had failed to give relief, three more in the first twenty-four hours, two in forty-eight hours, one on the third day, being also intubed eight times without relief before tracheotomy was performed, and one on the eighth day, the latter dying from sepsis complicated with Broncho-Pneumonia.

The results of the operation of intubation are almost brilliant when

compared with those of tracheotomy. Such was the case before the use of antitoxine, it has been even more marked since its introduction. When, of two hundred laryngeal cases of diphtheria coming to operation, ninety-three recover completely and are able to go home, some of them being in an exhausted and almost moribund condition at the time of entrance to the hospital, the results of such treatment speaks for itself. Nothing but the operation of intubation succeeded in saving their lives, together with the use of antitoxine; the operations of tracheotomy, as has happened repeatedly, would have been fatal to the patient, probably in some cases on the operating table, and the mortality in place of being 53.5 per cent. would have been in the vicinity of 90 per cent. Antitoxine is also of great value in preventing operations on laryngeal cases by its peculiar power of causing the disappearance of the membrane. If the statistics before and after antitoxine are compared again, it will be found that previous to the use of antitoxine, the mortality in all cases of diphtheria was 43 per cent, while since then the mortality in the intubation cases alone, has been only 53.5 per cent, surely a wonderful result and an indispensable argument for antitoxine, in regard to its power of saving lives.

The operation of intubation although requiring a special set of instruments and a certain amount of skill has a distinct advantage over the older operation of tracheotomy. In the first place the parent's consent

can be more readily obtained and the operation can be performed at an earlier stage of the disease than when tracheotomy or intubation becomes a forlorn hope in the last extremes of the disease. There is no cutting operation, no wounds to be dressed and kept clean, no septic absorption to occur and the air passes in a natural way to the lungs and through the natural air passages, being thus warmed, while in tracheotomy cases no such advantage is obtained. Again the operation has practically little shock and is completed in a few seconds with but little inconvenience to the patient, while the relief is prompt and well marked.

The danger of inhalation of dust through the tracheotomy tube is considerable and it is in this way that many fatal pneumonias are developed, while in intubation although pneumonia occurs they are caused by the diphtheritic membrane extending downwards into the lungs and not by the inhalation of foreign particles of dust. The real danger of a case wearing an intubation tube appears when the membrane in the larynx having become dislodged, this piece of membrane gets into the lumen of the tube and more or less occludes the free passage of air. The child gasps for breath, becomes very restless and cyanotic and immediate extraction of the tube is imperative, which having been done the child's condition improves perceptibly. Another case of emergency appears when the tube is coughed out suddenly by the child and has to be replaced immediately.



In hospital practice these emergencies can always be overcome by prompt attention, but it is in private practice with the physician away from his patient that the true danger appears, and the child may die before medical aid can be secured. In spite of these dangers however, intubation should still be the preferred operation, for, although they may appear at any unexpected time, in any case, the dangers of the operation of intubation are considerably less than those of tracheotomy, and are followed by far more successful results.

The question of the presence or absence of membrane on the tonsils and fauces in addition to laryngeal symptoms in a case of diphtheria is no true indication which course the disease may take. It would be generally supposed that in an operative laryngeal case with membrane present on each tonsil and in some cases involving the uvula with a certain amount of sepsis present also, that a more unfavorable prognosis would be given than when there is no membrane present. Statistics on these cases, however, fail to corroborate this supposition for of one hundred and forty-seven cases of intubation with membrane on each tonsil seventy-two recovered, while of fifty-three with out membrane only twenty-one recovered. There seems to be some indication in those cases where there is no membrane present that a severer type of the disease exists in the larynx and the tendency of the diphtheritic membrane to extend downwards into the bronchi and

lungs is more marked than when the membrane is present on the fauces. An additional danger is present in the cases with membrane that is not present in those without membrane by the fact that the membrane on each tonsil becomes detached in about forty eight hours, and a considerable amount may fall downwards into the larynx and occlude the lumen of the tube. This has occurred in several instances, but by prompt extraction of the tube the danger was averted and no serious complications followed.

There have been sixty laryngeal cases of diphtheria which did not come to operation, they having been relieved by steam, calomel or steam medicated with a mixture of carbolic acid, oil of eucalyptus and spirits of turpentine. In addition it can be said that the use of antitoxine was also beneficial in arresting the course of the disease and in causing the membrane to disappear from the larynx, which probably was more instrumental in preventing an operation than any medication which was given. Syrup of ipecac has also been given in these laryngeal cases, in large but not emetic doses. Of this class of cases thirty-eight had in addition to the laryngeal trouble, membrane present in the throat and twenty-two had none. The latter cases may be hard to diagnose, because no membrane can be seen on examination, but the fact that there is a croupy cough, a husky voice and in some cases retraction is sufficient upon which to make a diag

nosis of laryngeal diphtheria. If however there is any question as to the diagnosis, an immunizing dose of antitoxine should be given. The fact that one of these laryngeal cases without membrane present in the fauces was later complicated by cardiac paralysis was sufficient evidence to confirm the diagnosis.

The laryngeal cases have been followed by the complications resulting from the use of antitoxine in the same manner as the faucial cases, and many diphtheritic sequelæ have also been present, all of which have been considered previously in the earlier part of the paper.

In the operative laryngeal cases it has always been an important question to decide as to the time of the removal of the tube. In an ordinary case the tube is allowed to remain in the larynx for six or seven days and then removed. In some cases the patient gets along all right without it, in others it must be replaced immediately or at any rate within twenty-four hours, and in exceptional cases it has to be replaced as late as fourteen days after the extraction. Sometimes before the sixth or seventh day the child has a violent attack of coughing and in the spasm, coughs the tube out of the larynx. It then may need to be reintroduced, or the patient may get along without it altogether. The cause of the child coughing up the tube is probably the fact that the membrane becomes dislodged and withers up, the tube works loosely in the larynx and acting as a

foreign body is expelled in an attack of coughing. By an examination of the appended list of cases it will be found that there is not much difference in the number of cases where the tube was extracted on the third, fourth, fifth, sixth, or seventh days, there being nine cases extracted on the third day, thirteen on the fourth, twelve on the fifth, nine on the sixth and eight on the seventh. After two extractions on the fifteenth day, there were two on the twenty-second, one each on the twenty-sixth and twenty-seventh and finally one case where the tube was worn consecutively for thirty-one days, an entire month. Other cases expel the tube a few minutes after intubation and get along all right. So the cases of intubation vary in the length of time that the tube is worn from a few minutes to thirty one days. There is no definite fixed time at which a tube should be extracted, it all depending on the patient in question and the particular condition of the case at a certain time. Each case should be cared for and treated symptomatically, and at about the end of the first week the tube extracted and if reintubation is necessary another attempt at extraction may be made on the fourth day. In many cases after a reintubation a second injection of antitoxine is frequently followed by a very satisfactory result and the tube can usually be dispensed with after the next extraction.

The number of times which the patients have been intubed has also proved interesting, for of ninety-three

cases which have recovered there have been thirty-one requiring reintubation. Of these thirty-one cases, twenty-one were intubed twice, two three times, three four times, two five times, one six times, and two nine times, making a total of 156 operations of intubation on ninety-three cases.

Many of the successful results of intubation have been greatly influenced by the use of nasal feeding. Before this method of feeding was employed it was the custom to feed the patient, while in a recumbent position and the head dropped backwards, with semi solids or liquids. It frequently happened that particles of food or treatment would get into the larynx, excite a spasm of coughing, and the tube would be expelled by the effort, and it was also considered a task to get the child to take enough nourishment for its subsistence. By the introduction of nasal feeding however, all these objections are removed and the child gets its treatment regularly every four hours. At stated intervals a small soft rubber catheter is passed through the nostrils into the oesophagus and thence into the stomach. A glass funnel is then attached to the end of the catheter, and about two or three ounces of water and the necessary amount of peptonized milk, and medicinal treatment are poured into it and pass into the stomach. This is also followed by two or three ounces of water. The introduction of the nasal tube should be made slowly and carefully, the removal quickly and with a jerk, for if it is withdrawn slowly, vomiting is more

apt to follow on account of the irritation of the tube in the pharynx. It was frequently the case before the use of nasal feeding, for children to be very thirsty and ask for liquids repeatedly, and in their endeavor to swallow them a violent attack of coughing would follow; this has entirely disappeared at the present time, and it is almost exceptional for a patient fed in this way to ask for any nourishment in the intervals of feeding.

The two hundred and sixty-six deaths have been classified as follows;— One hundred and seven died from sepsis, ninety-one from broncho-pneumonia, fifty-two from cardiac complications, thirteen from exhaustion, and one each from general tuberculosis, empyaema and typhoid fever. A careful examination of the table of deaths shows that one hundred and nine of them occurred in the first forty-eight hours after admission, cases which were apparently hopeless from the time of entrance into the hospital. Of the forty-five cases of sepsis dying in the first forty-eight hours, thirteen died in the first twelve hours after admission. Some of these septic cases were also accompanied by broncho-pneumonia but as the septic condition was apparently the predominating one they are classified as such.

Of the fatal cases of broncho pneumonia all were operative cases with eight exceptions, and one of these was a laryngeal case which did not come to operation, twenty-one of these cases died in the first twenty-four hours, and twenty more in the

next twenty-four hours. The fatal cases of intubation, seventy-five in number, with membrane present on each tonsil, were intubed, a total of one hundred and forty times, those without membrane a total of one hundred and six times, and four tracheotomies were intubed thirteen times before the former operation was performed, making a total of 259 operations of intubation on 107 fatal cases. By comparing these figures with 156 intubations on 93 cases which recovered it will be seen that the greater the number of times a patient is intubed, the less are his chances of recovery, although of course this does not hold true in every case, for two cases which did recover were intubed nine times each, and other conditions must enter into the prognosis. This makes a total of 415 operations of intubation on two hundred cases, or an average of each patient being intubed slightly over two times. Of the 52 deaths of cardiac origin, 20 occurred before the seventh day, which is considered the earliest day which cardiac paralysis due to nervous degeneration appears, and therefore they may be classified as cases due to the profound depression caused by the diphtheritic toxine. This depression manifests itself at times by an extremely slow pulse, in one case falling to twenty-eight beats per minute, and in another to thirty-two beats. The cases due to nerve degeneration appear on the seventh day or later, the latest case appearing on the sixty-fourth day. These are characterized by the symptoms mentioned in the considera-

tion of cardiac paralysis, viz:—nausea, vomiting, pain over the præcordia, faint feelings with tingling sensation in the extremities, etc., and they have also been considered under that classification. Of the thirteen deaths classified under the head of exhaustion there is little to be said. They were poorly nourished patients, coming into the hospital with diphtheria; they had their antitoxine, the membrane cleared away but they failed to respond to any treatment given them and finally gradually faded away. Of the other three deaths it can be definitely stated that death was due in each case to the disease assigned, and not to diphtheria, but as diphtheria was a complication they are included in this series of cases.

The three cardinal points in the *treatment* of patients ill with diphtheria, are 1st. Antitoxine, 2nd. Stimulation, 3rd. Irrigation. The use of antitoxine has already been alluded to in the early part of the paper. In regard to stimulation it can be said, that alcoholic stimulation particularly in the form of brandy or whiskey is of inestimable value. Further medicinal treatment may be also employed depending upon the symptoms in each individual case. For irrigating the throat and nose many solutions have been tried, but the one almost entirely used at the hospital at the present time, is a hot normal saline solution, and the patient's throat and nose washed out every four hours. It is almost wholly mechanical in its action removing the membrane and mucus secretions pres-



ent in these passages, which effect is best obtained by having the irrigating fluid in a fountain syringe with a fall of about three to five feet. The relief obtained by an irrigation properly given is considerable. Other solutions used have been a weak solution of corrosive sublimate, 1-10,000, a 1-1000 solution of permanganate of potassium, chlorinated soda wash, solution of thymol and a 1-80 solution of tincture of myrrh, but little is to be gained from any of these which is not obtained by the normal salt solution, except in those cases where the discharge is foetid, some of the disinfectant solutions are more effective.

Other points of importance in reference to treatment have been considered under the special subjects to

which they related, but in all cases the object of the treatment, and especially is this the ease in local treatment, is not to injure the mucous membrane by the application of irritants, and never remove the membrane forcibly, for an abraded surface will be left, upon which the diphtheritic membrane will extend. The Antitoxine will clear away the membrane from the throat. Stimulation will increase the resistance to the diphtheritic poison. Irrigation will remove the loosened membrane from the affected parts and in a very great majority of cases a favorable result will be looked forward to.

162 HIGHLAND AVE.

SOMERVILLE, MASS.

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### Philadelphia Paediatric Society.

*February 9, 1897.*

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J. P. CROZER GRIFFITH, M.D., President.

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THE PRESIDENT presented two cases of unilateral tumor, the first occurring in a boy of twelve years of age, in which case the condition had been present from earliest infancy and was associated with spastic symptoms. In the second case, a boy of 18 months of age, the tumor had only recently developed, and was unattended by any increase of muscle-tonus.

DR. HOWARD S. ANDERS exhibited

the skiagraph of a fetus. He said :

"This skiagraph that I have to show is one that I think was shown before at a meeting of the County Medical Society at the time when Dr. Stern read a paper, amongst the copies brought by Mr. Carbutt. The case was one of my own and I take this opportunity of showing it tonight. Besides certain admirable features in the mechanical execution of the skiagraph, there are a few points of inter-

est which I will mention: The mother of this child was a colored woman, weighing about 92 pounds, very small, with a pelvis of minor type: and while I had seen her first in private practice, at this period of her pregnancy I had her sent to the Samaritan Hospital and my colleague there, Dr. Hachulen, thought premature labor should be induced, because the uterus was fairly riddled and bosselated with fibroid tumors. It was done, and this child was born and lived a week. It measured 37 cm., or about 14 3-4 inches in length.

After death Dr. Goodspeed offered to make a skiagraph of it. He felt very much interested in obtaining a complete skiagraph of such a specimen. The body was applied to the negative plate with shutters on, and four or five layers of bandage bound the child down so as to have the extremities as flatly placed as possible. The skiagraph exhibits some very nice work in skiagraphy. You will be able to observe the outline of the skull, of the spinal column, indeed of nearly all the bones: and one very nice feature shown throughout the skiagraph is the absence of any complete joint formation. You see only the lighter shadow of cartilaginous tissue. No epiphyses are visible. The view is as though looking through the back of the child. You will see the shadow cast by heart and liver and also more or less circular outlines representing the intestinal walls. If one were to outline by topographical percussion the liver and heart areas, one could hardly do it more perfectly

than are these shadow areas shown here. You can see also in the long bones the canals and the deeper shadows formed by the wall of the bone.

DR. TULL.—I should like to ask Dr. Anders if he knows of a skiagraph having been taken of a fetus before birth. I have been looking at medical journals very carefully to see if anything of the kind has been done.

DR. ANDERS.—I have rather a vague recollection of having seen something from German literature that some attempts were made to get a skiagraph of a fetus in utero, but I am not sure whether it was accomplished with any satisfactory results or not.

DR. ALFRED. HAND, JR., exhibited case of recovery from cervical Pachymeningitis.

The patient, a girl of 16 years, was in the Children's Hospital in 1892 with a spastic paraplegia, with atrophy in the distribution of the median and ulnar nerves and with the hands held in the characteristic position of over-extension: there were also pains radiating down the arms, with paresthesia in the hands. At the present time the patient feels perfectly well and the only trace of her former condition is the presence of exaggerated knee-jerks and ankle clonus.

DR. WHARTON SINKLER:—The history of the case read by Dr. Hand, is very interesting to me because the symptoms were very much like those of syringomyelia. The loss of temperature sense, the exaggerated knee-jerks, the loss of power in the flexors,

with retained tonicity of the extensors reminds one very much of syringomyelia. Now we know, that in syringomyelia the diseased area is usually in the upper part of the cord, and the same nerves are therefore involved which are affected in cervical pachymeningitis. The marked difference is that in syringomyelia there is absence of pain, while in cervical pachymeningitis pain is a prominent symptom. In syringomyelia, there is loss of thermal sense, while in cervical pachymeningitis the power to distinguish heat and cold is not impaired.

The recovery of the case is very remarkable and very interesting because the prognosis in cervical pachymeningitis is usually bad. I would like to ask whether the patient's temperature sense has become normal.

DR. GRIFFITH.— I disagreed with Dr. Hand in the matter of diagnosis when the case was at the Children's Hospital. Events have proved that he was quite right, and that I was mistaken. In company with several others who saw the girl, I was in doubt as to the history of pain. It seemed to me that the idea of pain had been suggested to her by the questioning. Looking at her now you can have no idea of her condition at that time. She was wasted, atrophic, almost totally helpless and apparently incurable. She looked like a case of amyotrophic lateral sclerosis, and I made this diagnosis. I am heartily glad for the girl's sake that I was mistaken.

DR. J. P. CROZER GRIFFITH presented Freeman apparatus for the pasteurization of milk, and read a paper upon the subject.

DR. PRENDERGAST wished to know if any bacteriologic tests had been made of the sterilized milk sold by different firms. He had used that of one firm with very good results.

DR. MILLER.— I am familiar with this instrument of Dr. Freeman's, and I think it is a very valuable addition to our means of infant feeding. I agree with what Dr. Griffith has said in regard to the unreliability of domestic pasteurization, and yet for some unaccountable reason, as we all know, a great many people will not use an apparatus which they have to buy and which goes by the name of a pasteurizer, or steriliser. Therefore, we are often forced to adopt some method which they regard as simpler, as anything goes by the name of a steriliser or pasteurizer is supposed to be complicated. Some years ago I tried experiments with the method so often advised, of milk sterilization by placing the bottles in a dish-pan of water, and then boiling the water. Of course the results vary a great deal with the heat of the stove, which is the great objection to this method; but I think if the direction is given that the water must be actively boiled for ten minutes the result will be satisfactory. Some years ago I made a few experiments in this line, taking milk quite cold from the refrigerator, and placing in one or two of the bottles a thermometer closely fitted to

their necks, by means of a cork or cotton, and I found that usually on a hot fire the water began to boil in five minutes, and that in 14-15 minutes the temperature reached  $167^{\circ}$  almost uniformly. The direction must be given to boil ten minutes, and that then the bottles must be immediately taken off, because the temperature rises very rapidly after that, so that in 18 or 20 minutes the temperature is  $190^{\circ}$  or  $200^{\circ}$ . If at the close of ten minutes the milk is immediately taken off and rapidly cooled by pouring cold water into the pan, the milk, I have found, over and over again, will keep for 24 hours in summer time at an ordinary temperature of  $80^{\circ}$  without the slightest change. I do not mean to say that this can in any way take the place of this instrument, which is accurately tested and meets all the indications in these cases.

The idea of Dr. Freeman's instrument is to keep the milk for 20 minutes at a temperature of  $167^{\circ}$ , and his is the only instrument which will do this accurately.

In regard to pasteurization of milk itself, I think it is a thing we ought to do without if we can. In the cities where we do not know our sources of supply, and in the summer when the changes are so rapid, it is quite necessary, although fermented milk is not always dangerous. I have known a number of instances where babies have taken milk, which has been fermented, for a whole day in the hottest summer weather without any detriment whatever. Several times

I have been called to see babies who have swallowed whole bottles of sour milk, but no mischief has followed. In the country where we can get fresh milk, and where we know the source is pure, I believe heating of any kind is unnecessary.

DR. WOODWARD.—I have a proposition to make to the members of the Pædiatric Society which I trust will be of interest to them. If anyone has a case of an infant which is not being well nourished at the breast and will furnish me with a sample of the mother's milk I shall be very glad to give the doctor a quantitative laboratory analysis without any fee, if he will give me in return a history of the case. The milk can be sent to me at the Pepper Laboratory, University of Pennsylvania.

DR. J. P. C. GRIFFITH.—I have no experience with the examination of milk for germs, I do not know anything about it. I have been interested in reading the article by Flügge who has gone extensively into the analysis of various commercial sterilized and pasteurized milks and condemns them all as dangerous articles. Of course he views the matter from the German standpoint and condemns German preparations, but what he says applies equally well to others. One can easily see that milk that is sterilized or pasteurized in any way unless it be with just enough of it in each bottle to feed the baby at one time is a dangerous thing, because it gives the mother a feeling of confidence, and she uses it wrongly. We must impress upon mothers that such



milk is just as liable to spoil as any other milk if it is exposed to the chances of spoiling. I would refer also to the studies of paper by Lewis and Koplik, which show that pasteurization only delays the growth of bacteria, and that milk so treated is distinctly more apt to spoil than sterilized milk, since the number of germs in it is greater. It is on this account that I feel that dishpan pasteurization is dangerous. If a physician with the intelligence of Dr. Miller could himself conduct pasteurizing of this kind, the baby would be comparatively safe, but we are not going to find nurse maids capable of such a thing. Therefore I would rather see milk sterilized than pasteurized in any such way.

In Dr. Freeman's last paper he has reduced the pasteurizing temperature to 155°, which makes the milk more digestible and yet comparatively free from danger. His first suggestion was to pasteurize at 168° F. If we are intending to pasteurize at 155° it is more important than ever to use accurate means of reaching this degree.

DR. STEWART stated that one of the milk firms supplying sterilized milk, put milk through the process only twice a week during the winter.

DR. C. H. WEBER reported a case of noma.

DR. ALFRED STENGEL.—The case impressed me particularly in the ways that Dr Weber has mentioned, especially the remarkable retention of vitality this child possessed. Although its entire mouth was exposed,

its tongue almost protruding externally and its teeth laid bare, it preserved a degree of vitality that was really remarkable. Also it is worthy to note that the rapidity of spread of this process was very remarkable. My own experience with noma is limited to seeing a few cases casually and to treating this one, and I am therefore in no position to say much regarding the rapidity of this process, but Dr. Ashhurst, who has seen a great many, tells me he has never seen one that spread like this.

Regarding the etiology of this case, I believe with the doctor that the original cause may have been typhoid fever or may have been whooping-cough. The almost complete absence of bronchitis or whooping, and therefore the certainty that this was not whooping-cough in the advanced stage of the disease, are enough to exclude whooping-cough as the cause. In regard to typhoid fever, I think we were mistaken. This child probably did not have typhoid fever. Its appearance was suggestive but I believe this was due to noma. Probably the cause of the disease was depressed vitality from causes we do not know. It may have been bad food, neglect or want. I see no reason why noma should not occur in these conditions, though it usually does not occur excepting in some infectious diseases.

DR. ALFRED HAND, JR.—There is a tendency on the part of some writers to class certain cases of ulcerative stomatitis, which assume a gangrenous process, as noma. These cases, which may rise as ordinary ul-

cerative stomatitis, progress to induration of the cheeks, loss of teeth and denudation of bone and in some cases terminate fatally or leave marked deformities without, however, perforating the cheek. It seems best to consider these as ulcerative stomatitis and not as noma, reserving the latter term for cases such as Dr. Weber has reported.

DR. JOSEPH SAILER.—I should like to ask Dr. Weber if there was any tendency on the part of the process to limit itself to the median line. This condition has been spoken of as occurring in this disease and has been looked upon as an infarction, due probably to multiple thrombi of the facial arteries.

DR. C. H. WEBER.—The process did limit itself to the median line and I think the photograph will show that. In looking over the records of the Children's Hospital for 41 years, I found many cases recorded as gangrenous stomatitis and then under result

of treatment I found "Cure." In some instances, five or six cases occurred within one year and not a death. As the mortality-rate of noma is 75 or 80 per cent, I did not count those cases in, thinking that they were ulcerative stomatitis. Last summer a fatal case of ulcerative stomatitis occurred in the Children's Hospital, in which there was extensive ulcerations. The child lost most of its teeth, there was necrosis of the bone, but as the tissues of the cheek were not involved in any gangrenous process, I did not record it as a case of noma.

DR. J. McKEE read a paper upon enuresis, discussing the physiology, of micturition and the causes of enuresis

DR. J. F. PRENDERGAST read a paper upon a simple remedy for enuresis, consisting in the douching with cold water, a method which has been almost uniformly successful in a large number of cases.

## BOOK REVIEWS.

(All *Exchanges and Books for Review* should be sent to DR. C. G. CUMSTON, 871 Beacon St., Boston.)

THE TRUE SCIENCE OF LIVING. By EDWARD HOOKER DEWEY, M.D., Norwich, Conn. The Henry Bill Publishing Co., 1895. Price \$2.25.

And, A NEW ERA FOR WOMEN. By EDWARD HOOKER DEWEY, M.D., Norwich, Conn. The Henry Bill Publishing Co., 1896. Price \$1.25

These two books contain the auth-

ors ideas upon a system of diet of which he is the originator and which is known familiarly as the "No Breakfast" system. The method is supported by elaborate argumentation which is conclusive or not, according to the readers other knowledge on the subject. That there is some truth in the idea is proven by the success in certain lines of disease. From many of the statements we must however emphatically dissent, especially where

this line of treatment is applied to the acute infectious diseases. Doubtless all Americans eat too much and too fast. But whether this is the best and only way to regulate the matter seems by no means so certain.

URIC ACID AS A FACTOR IN THE CAUSATION OF DISEASE. A contribution to the pathology of high arterial tension. Headache, Epilepsy, Mental Depression, Paroxysmal Hæmoglobinuria and Anaemia, Brights Disease, Diabetes, Gout, Rheumatism and other disorders. By ALEXANDER HAIG, M.A., M.D., F. R. C. P. Third Edition with fifty-four illustrations. London. J. and A. Churchill, 1896, Price \$3.00.

The fact that this book has since 1892 reached its third large edition, shows what an attraction the theories herein propounded have had to the profession. Starting with personal experience Dr. Haig has pushed out further and further in the domain of general medicine till as the sub-title indicates, he has covered no mean portion of medicine. The results attained by following out the line of treatment he suggests are undoubted. Whether Uric Acid is the cause of all this trouble or is only an intermediate step or an indication of the condition, we may not agree. Careful study in this line is a distinct advance and worthy of our most exact scrutiny. More than 500 pages are devoted to a study of the relations of Uric Acid in the diseases indicated, and then follows 40 pages of considerations of the lines of treatment consistent with the conclusions which result. Here diet is of course foremost, and this is but in line with the progress in medicine which is ever giving more and

more importance to diet and hygiene.

### Antitoxin in Diphtheria.

Our readers will be intrusted in this tabulated statement of the reported effects of antitoxin as noted by Dr. Alexander McAlester.

MORTALITY OF DIPHThERIA AS TREATED WITH OR WITHOUT ANTITOXIN.

<i>American.</i>			
	Without Antitoxin. per cent.	With Antitoxin per cent.	
1. Boston, Mass. . . . 40 "		11 "	
2. Detroit, Mich. . . 40 "		11 "	
3. Chicago, Ill. . . . 53 "		9 "	
4. Hoboken, N. J. . . 34.8 "		10.94 "	
5. Kansas City, Mo. . 40 "			
6. Milwaukee, Wis. . 43 "		9.6 "	
7. Minneapolis, Minn. 48 "		10 "	
8. Montreal Gen. Hos. 10.3	103	cases,	10 deaths.
9. Newark N. J. . . . 42 "		16.4 "	
10. New York. . . . . 50 "		11 "	
11. St. Louis, Mo. . . . 60 "		4.6 "	
12. St. Paul, Minn. . . 43 "		12 "	
<i>Foreign.</i>			
13. Berlin, Germany . . . 29.9 "		13.2 "	
14. Budapesth, Hungary. . 62.5 "		14.2 "	
15. Cracow, Russia Poland 56.3 "		22 "	
16. Glasgow, Scotland . . . 38.3 "		14 "	
17. Japan (Kitasato) . . . 56.54 "		8.78 "	
18. London, England . . . 64 "		17.64 "	
19. Moscow, Russia . . . 40 "		10.5 "	
20. Paris, France . . . . . 60 "		12 "	
21. Republic, France	Reduction in mortality. 65.6 per cent.		

There have been upward of a million injections of antitoxin, and in but five cases was death attributed to the serum, and in these no positive conviction could be assigned.

22. Reduced period of intubation by the serum treatment of laryngeal diphtheria.

#### *European Observers.*

Bokai . . . . .	18	hours.
Von Ranke . . . . .	25½	"
Huebner . . . . .	63	"

#### *American Observers.*

O'Dwyer . . . . .	67	hours.
Fischer . . . . .	68	1-10 "
Rosenthal . . . . .	61	16 "

University Medical Magazine, Aug., 1896.

# ANNALS OF GYNECOLOGY AND PEDIATRY.

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## ORIGINAL COMMUNICATIONS.

### RESIDUAL GONORRHŒA.

PROF. M. SAENGER, LEIPSIK.

#### I. GENERAL FACTS.

IN many cases of gonorrhœa the disease is not cured even when the gonococci have disappeared from the secretions and tissues.

Inflammatory processes, set up by the gonococci, may remain after the disappearance of the latter:

*a.* As chronic inflammatory processes, leading to the formation of cicatricial tissue.

*b.* As apparently relapsing affections, in the form of acute exacerbations of existing chronic inflammation.

*c.* As persistent affections, partly of a specific nature, and continuously recognizable by the changes which have been set up in the tissues.

For these pathological conditions, which may appear in consequence of gonorrhœal infection, there has until now been no classification. I describe them as RESIDUAL GONORRHŒA.

Up to the present time there have been distinguished three stages or forms of gonorrhœal infection:

1. Acute gonorrhœa.
2. Chronic gonorrhœa.
3. Latent gonorrhœa.

In woman, the distinction between acute and chronic gonorrhœa often lies more in the time which has elapsed since the occurrence of infection than in any greater intensity during the acute stage or in any extreme extension of its invasion in the beginning.

Clinically, to be sure, in cases of acute gonorrhœa, distinction can only be made between typical and atypical forms of the disease. The typical, which is most clearly and commonly observed in prostitutes, runs its course with the violence both as to subjective and objective symptoms, which is found in acute gonorrhœa in the male; the atypical, which is often-



est met with by gynæcologists, has more resemblance to the chronic disease and on account of its freedom from subjective symptoms it is frequently described as insidious.

There are no sharp transitions from either acute form into the chronic stage.

The demonstration of gonococci by the microscope and by cultures is an essential requisite for the diagnosis, in addition to the clinical appearances.

The conception of latent gonorrhœa, derived from a very inappropriate comparison with latent syphilis, should be finally abandoned. Even in the signification of "latency of the gonococci" it cannot be maintained, since the presence of the gonococci presupposes such a field of nourishment, and therewith evidences of life such as would be connected with it.

The so-called latent gonorrhœa is nothing else than:

*a.* An acute exacerbation of an existing chronic gonorrhœa, or

*b.* A new infection, either admitted or denied, or

*c.* A mere chronic gonorrhœa, or

*d.* That, which we define as residual gonorrhœa.

The separation of the different clinical varieties of the result of gonorrhœal infection according to the duration of their existence is made difficult by the fact that we have no definite knowledge concerning one important aspect of the biology of the gonococcus of Neisser, namely the duration of its life, in general, and within

the organs which it has attacked. In this connection the question of the duration of the life, for instance, of a single anencapsulated mass of gonococci, which has been estimated by Fabry as reaching to 15 years, must be distinguished from the question of the manner of their elimination.

The observation has frequently been made by gynæcologists that the pus from cases of pyosalpinx or ovarian abscess, in which the gonorrhœal infection is by no means long past, is free from gonococci. This fact admits of no other interpretation, at least for these isolated parts of these organs, than that the capacity of the gonococci for living and increasing has become exhausted within a short time. Another assumption is inevitable, both on account of negative bacteriological examinations on the one hand, and on account of clinical evidence on the other hand. This is that many chronic diseases, which depend on original gonorrhœal infection and affect the other parts of the sexual apparatus, which are open and thus more capable of elimination, no longer depend on the presence and activity of the gonococci, but are occasioned by the morbid alterations of the tissues originally caused by these, but now persisting or even extending.

In these cases gonococci can be demonstrated neither in the secretions nor in the tissues, although history and clinical evidence make the gonorrhœal origin of the disease certain. These forms may therefore be prop-

erly designated as residual gonorrhœa, and distinguished from chronic gonorrhœa.

Gonorrhœal infection, after its progress and infectiousness have long been extinguished, leaves in the tissues and parts of organs which have been attacked by it, a whole series of very characteristic, even specific, signs, which I denominate the residual signs of gonorrhœal infection.

As Palmer and others have done for the persistent signs of healed or latent syphilis, so I, for years, have devoted my attention to these signs of residual gonorrhœa in general, and have arrived at the following classification of them:

## II. SPECIAL FACTS.

Forms and signs of residual gonorrhœa.

### 1. Vulva.

*a. Vulvitis maculosa (persistens).* This is an affection of the mucous membrane of the vestibule, in the form of spots around the openings of the ducts of the glands of Bartholini. formerly described as resembling flea-bites; moreover in the form of dark red spots, usually small, sharply circumscribed, around the para-urethral ducts, on the summits of the excrescences and caruncles of the vulva and scattered on the remaining mucous membrane. (Compare with *Leucoderma syphiliticum vulvæ*.)

The specific nature of these lesions is precisely what I maintain in opposition to Bumm and Zweifel. (Microscopic preparations of a "macula"

show that there is a rather deep chronic inflammation of the papillary body, with vascular estasia, dilatation of the vessels and great thinning of the epithelium.)

*b. Adenitis glandulæ Bartholini scleroticans.*

The glands of Bartholini can be felt on one or both sides as hard nodules, not tender, and of the size of peas to that of hazelnuts. (To distinguish them the region of the gland is taken between the thumb and index finger and examined.)

*c. Oval, or round, shallow, clearly circumscribed ulcers, exterior and inferior to the mouth of the duct or the gland of Bartholini, and originating in previous rupture of abscess of this gland, which have occurred with necrosis of the mucous membrane covering it. (Rare.)*

*d. The great majority of the cysts of the gland of Bartholini.*

### 2. Urethra.

*a. Urethritis maculosa externa (persistens),* the formerly described, sharply limited, dark red spots or rings of the external aperture of the urethra.

*b. Various forms of chronic urethritis, analogous to those described by Oberlaender for the male urethra, which furnish the gonorrhœal threads.*

*c. Strictures.* The commonest cause and the condition most frequently found in cases of vesical tenesmus, and of urethral tenesmus where the urine is normal. Often combined with chronic urethritis.

d. Chronic periurethritis in the form of a rigid thickening of the whole urethra, even to the thickness of the ring finger.

### 3. Vagina.

#### a. Colpitis maculosa (persistens).

The mucous membrane of the vagina and of the mucous covering of the vaginal portion of the uterus, especially in those parts which have few folds and papillæ, shows dark red spots, partly well defined and partly indistinct, similar to the maculæ in the vulva. When these occur in the region of folds and papillæ they are situated on the crests and points.

b. Colpitis granularis (persistens), already described by Neumann, of Vienna, as "vaginitis papulosa," and also described by Carl Ruge and connected with gonorrhœa. These occur in the same places and with the same distribution as the maculæ vaginales. The granules or nodules are smaller and harder than those of acute granular colpitis of pregnant women. A certain diagnosis can only be made by use of the speculum, in order to avoid confusion with papillæ. Their apices then often show a dark red color. Very frequently colpitis maculosa and granularis occur together.

An excellent and sure reagent to bring out both forms clearly has been found in 50 per cent solution of zinc chloride. A pledget of cotton wet with this is introduced into the cylindrical speculum, and then it is withdrawn as far as the vaginal entrance and again pushed in, several times,

until the chloride of zinc has been brought into contact everywhere with the vaginal mucous membrane. The macules and granules then are seen as snow-white spots, the latter in various sizes, like the stars in the sky, in contrast with the pale-red vaginal mucous membrane, which has remained unaltered. The 50 per cent solution of zinc chloride serves also at the same time as a means of treatment, for after one or several applications the macules and granules disappear. Nevertheless there are some obstinate cases where this does not happen. Certain cases of colpitis atrophicans (obliterans), and of colpitis senilis hæmorrhagica certainly depend on gonorrhœa originally. Likewise many cases of Vulvitis pruriens (*Pruritus vulvæ*). On the other hand Condylomata acuminata belong to acute or chronic gonorrhœa.

### 4. Uterus.

#### a. Endometritis and Metro-endometritis chronica postgonorrhœica (residualis).

In cases in which considerable time has elapsed since the gonorrhœal infection and repeated examinations of the uterine secretions have failed in showing gonococci, even when the discharge is quite purulent, and those in which it has been artificially increased, it is permissible to assume that we have to deal with a residual form of endometritis and metro-endometritis, that is to say, that the inflammatory processes, originally excited by the gonococci, now continue without

the latter, causing hemorrhages and morbid secretions.

This view of the condition, according to which the inflammatory process persists but not the gonococci, explains without difficulty the development and courses of numerous cases of endometritis, etc., which until now have either been wrongly attributed to chronic gonorrhœa, or in which all connection with gonorrhœa has been denied.

For a proof of the rapidity with which, under certain circumstances, in ascending gonorrhœa, the gonococci may disappear from the uterus, Wertheim showed that in a series of radical abdominal operations there were indeed gonococci in the tubes, but no longer any in the uterus.

*b. Perimetritis chronica postgonorrhœica.* This affection in a pure form, not as a part of a pelioperitonitis diffusa, is very rare except in connection with gonorrhœal infection. When it is observed it is almost always derived from an acute gonorrhœal metro-endometritis, and in its late stages it is to be regarded as a residual form.

5. *Adnexa uteri, Pelvic peritoneum: Salpingitis, Perisalpingitis, Oophoritis, Perioophoritis, Pelioperitonitis chronica residualis.*

The frequency and the importance of gonorrhœal disease of the appendages needs today no further emphasis.

If in the case of pus from a pyosalpinx or a pyovarium, which depends on gonorrhœal infection, there are no gonococci present, and if they cannot

be found in the wall of the abscess of the tube or ovary, it may properly be claimed that the morbid process is yet so recent that collections of gonococci must have been there and remained undiscovered.

This is no longer the case, however, in disease of the adnexa and of the pelvic peritoneum, originally purulent, but where the purulent collections have entirely disappeared.

We do not know in fact exactly the conditions, under which the purulent collections sometimes are preserved, although they are sterile, while at other times they are replaced by serous effusions, layers of connective tissue, bands and membranes; this process of transformation cannot be denied, however.

It is precisely in regard to these extinct, non-purulent, chronic inflammations of the adnexa and the pelvic peritoneum that it has been proved by numerous anatomical and bacteriological investigations, in connection with the ordinary operations on the appendages, that they certainly no longer contain gonococci but that they are to be regarded as chronic inflammations, free from microbes, of residual nature. The cystic and pseudocystic formations, which are so frequently present in residual disease of the adnexa, such as follicular cysts of the ovary, cysts of the meso-salpinx, and lymphocœles, as well as sacs of hydrosalpinx, are to be considered as similar in their origin to retention cysts, and therefore by no means as



consequences of a still active and progressive tissue formation.

Nevertheless inflammatory exacerbations certainly do occur, quite like inflammations in certain forms of periadnexial effusions of the blood, as well as in connection with hæmatometra lateralis.

If Neugebauer, in his time, taught that a gonorrhœal affection of the adnexa may relapse repeatedly (his "relapsing perimetritis"), this opinion must be opposed, according to our present views; for either it is a case of disease of the adnexa which is not as yet at all free from pus, or as the case may be from gonococci, which has healed and is therefore residual, or it is a case where secondary cystic formations have occurred, which by increase in volume simulate inflammatory swelling or an exudation, or in general some form of inflammation in which gonococci no longer had any part.

Fresh inflammation, however, seldom occurs in cases of residual disease of the appendages.

6. Pelvic cellular tissue: Parametrium.

In regard to the cicatricial remains of puerperal parametritis, which are found with extraordinary frequency, it cannot be decided whether they are of gonorrhœal origin until the presence of gonococci in the acute stage of the exudate can be demonstrated.

7. Rectum. Strictures of the rectum, which are still involved in much obscurity as to their ætiology, are

very probably to be regarded as largely gonorrhœal residua, according to the evidence lately furnished by Baer of the comparatively great frequency of rectal gonorrhœa.

I will not here enter on a consideration of gonorrhœal residua in other organs such as the heart, the joints and the eyes.

All the forms and kinds of residual gonorrhœa, which have been set forth above may be easily classified under one of the three groups mentioned in the beginning of this article.

Many of the forms and symptoms of residual gonorrhœa, as here established will indeed—and for this I am prepared—be received with skepticism by those, who regard the positive demonstration of gonococci as the Alpha and Omega of every diagnosis of gonorrhœa and in fact of every investigation concerning this disease. This skepticism will seem to them to be justified by the fact that this classification presupposes the absence of gonococci, and is principally founded on clinical observation.

To these critics I will therefore concede that some of the forms described above may, to be sure, belong within the limits of chronic gonorrhœa; such forms, for instance as vulvitis maculosa, colpitis maculosa and granularis, and of course also endometritis. In the great majority of cases, however, the presence of gonococci could no longer be demonstrated, even by careful and repeated examinations, which of course I have

employed. The gonorrhœa has become residual.

The clinical diagnosis of residual gonorrhœa and of its symptoms is based partly on the fact that the conditions found to be present may also be found in cases of chronic gonorrhœa with positive demonstration of gonococci, and further on the fact that when these symptoms are always and regularly found in persons the diagnosis can be fortified by a clinical history, which embraces all manifestations of gonorrhœa, and which investigates the condition of husband and

child, as well as the well known pathological alterations of the sexual organs due to gonorrhœa.

If only those pathological alterations of the sexual organs in which gonococci are found, are to be reckoned to belong to gonorrhœa, a whole group of cases would be switched off from the right road of ætiological recognition onto a false track. This group not only permits us to trace the appearance of the disease backwards to its origin, but also gives us important indications for a successful treatment.

## PUS TUBES AND THEIR MANAGEMENT.\*

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It is not possible, perhaps, to make an exact title for such a paper as I had in my mind to present to you today. I desire to call attention to those suppurative conditions in the female pelvis, either within or without the fallopian tube, which we believe generally originate from infection. The literature on the subject is abundant, and is the common property of all intelligent readers, so that I shall not take your time to quote the opinions of others; but shall speak of certain clinical facts which have interested me, and which I believe throw some light upon the question of management—operative and otherwise.

Some weeks ago a woman with her husband came into my office and asked me to examine the pelvis and tell her what ailed her. She had a little temperature, was thin in flesh, and had the general appearance of a person who was ill-nourished. I found the uterus movable, on both sides of it the broad ligaments were slightly infiltrated and thickened, and the ovaries were sensitive to pressure. There was no well-marked tumor to be found anywhere in the pelvis, but the uterus was enlarged, and pus was being discharged freely from its mouth. She gave a history of having caught cold during menstruation, and I had in my mind the fact that she probably had some specific infection. I told

\* Read before the Northern New York Medical Association, October 13, 1896.

her to go home and have hot antiseptic douches, to lie in bed at least two weeks, to take food freely and have her physician prescribe for her at once, and I thought she would get well. She then told me that two surgeons had seen her before me, and advised immediate operation for the removal of both ovaries and tubes. They were general surgeons, occasionally laparotomists. This woman got well under very simple treatment. I saw her two months later without any evidence of disease of any kind. She had catarrhal salpingitis and it would have been a mistake to operate on her.

I saw a woman from Trenton more than a year ago with a history of metritis following an abortion some six months before. She had been quite sick at the time, had considerable fever, and had never regained her general health. There was constant pain in the left side, and occasionally severe attacks of what was called peritonitis, lasting a week, and the bladder was irritable much of the time. On examination the neck of the uterus was found to be slightly lacerated on one side; the depth of the uterus was increased about an inch; the cavity of the uterus would hold, perhaps, about an ounce, and the endometrium was sensitive. The uterus was retroverted to about the plane of the vagina. While the right tube and ovary seemed normal, on the left the broad ligament was thickened; and at about one-half inch from the uterus was a

small, spindle-shaped tumor, about as large as the index finger and two inches long.

After preparing the patient carefully I dilated and curetted the uterus, made the endometrium aseptic and packed very firmly with gauze. Taking the gauze out four days later I saw an ounce or two of creamy pus flow, and called one of the surgeons then in the house to witness it, as it was rather a rare thing to see a pus tube discharge. The tumor on the left side had disappeared. This woman made rapid recovery and has remained well. I have seen a few such cases in which encysted salpingitis had this happy termination, but they had not been of long standing.

I was asked the other day to do a vaginal celiotomy for a pus case, and found both tubes prolapsed with their ovaries each the size of an orange, but perfectly movable, adherent nowhere, and without exudate in the pelvis about them. I refused to do this, saying that it was safer to do a ventral celiotomy in all such instances. I have tried several times to incise and drain such freely movable tumors, but have never felt that the operation was satisfactory. The tissues below are infected, and the pelvis is no longer entirely free from adhesions. The abdominal operation which removes such masses leaves the pelvis in a normal condition, and the operation is comparatively harmless.

Some months ago, down in the country, where I was asked to do a

laparotomy on a very feeble woman, I found the patient so weak from two months of continued sepsis that it seemed quite doubtful if she would withstand the shock of the major operation. The pelvis was massed full of exudate, and it was difficult to distinguish the organs from each other. Behind the cervix there was a mass as large as an orange, which seemed to have deep fluctuation, or at least a doughy feel. The history was very imperfect of a hemorrhage following a blow in the abdomen three months previous, with a suspicion of a miscarriage at the time. Some two months prior to my visit she had peritonitis, so called, was in bed two weeks and then got up. She had another slight hemorrhage, and was more ill than at first; from that time she had never been able to get up, and ectopic gestation was diagnosed. Her temperature was at the time of the operation 101 degrees, pulse 115 and feeble.

I advised vaginal coeliotomy and opened into a series of at least three distinct bags of pus; the last one being in the tube, we evacuated, perhaps, a quart of dark pus and old blood clots. This woman recovered without any untoward symptoms, and the pelvis was restored to its normal condition. I am convinced that she would not have borne a laparotomy.

I had a woman brought to the hospital last year having a large tumor in the left side of the pelvis, with a history of ectopic gestation, and a rup-

ture of the sac, occurring four weeks before. The tumor was plainly fluctuating, but was not movable. It did not present the ordinary characteristics of an ovarian cyst, therefore, I incised it through the vagina. I removed about two quarts of dark, fluid blood, and the patient became exhausted. Anæsthetics were discontinued, and she seemed to go into a collapse. I tamponed the opening of the sac with gauze, put her hurriedly to bed and administered saline injections and strychnia, and she rallied in two days. Without anæsthetics I unpacked and enlarged the incision, getting out more than a quart of dark, offensive fluid, washed the sac and put in the gauze drainage. The woman's temperature became normal and she recovered very rapidly.

These are the main types of cases that go under the general name of salpingitis, or pelvic abscess. Undoubtedly they chiefly originate in the uterus, and the septic poison is conveyed into the tubes. If this simply caused a catarrhal discharge from the tube, with a slight thickening of its walls, and a gradual dilatation of its caliber, together with the extension to the ovaries of an inflammatory process without infecting them with pus—in other words, if the fimbriated extremities of the tubes do not leak, thus infecting the cellular tissue about the broad ligament—the case may be managed without any operative procedure. This is the condition in the



majority of cases in which fever follows for any length of time an abortion, a natural delivery, or an acute gonorrhœa. Of course, these may at any time be transferred to the other class and become cases of encysted salpingitis. If the proximate end of the tube becomes accidentally closed, then the accumulation of pus may gradually distend the tube until it leaks, and the pelvis is generally infected, and the inflammatory exudate binds the organs into one indistinguishable mass.

It is in this last condition that vaginal cœliotomy has seemed to me to accomplish the best results. If the tubes are perfectly movable, and the pelvis generally is not infected, and the encysted salpingitis affects the general health of the woman, then I strongly advise the removal of both ovaries and tubes by the abdominal route. Where, however, the pelvic exudate binds all these organs into one hard doughy mass, then the vaginal incision with drainage is very safe, and also very effectual. Laparotomy, in a few instances, is required later.

It is to these operations, then, that I wish especially to call your attention, as one of the newer and more efficient methods of managing suppurative disorders within the pelvis. We have now a sufficient number of cases on record where the operation has been done to give us a fair idea of its ultimate results, and to make us feel that certain selected cases which give only fair results, and the rather

large mortality under abdominal section, can be managed much easier through the vagina. Perfectly movable tubes that are encysted ought to be excluded, however, for these are better managed by the abdominal route.

The French surgeons led up to this question by advocating vaginal hysterectomy in those cases where suppurative disease existed on both sides of the uterus. This practice, which had been carried on in France until, perhaps, a year ago, gave such tremendously large statistics of hysterectomy, that American surgeons were at a loss to know the indications which required hysterectomy so frequently. It was not difficult, however, when one saw them operate in their own hospitals, to learn that they did vaginal work more deftly than American surgeons, but they did not do abdominal work so well, nor so safely.

Some American surgeons had, at that time, advocated the total extirpation of the uterus in cases of bilateral, suppurative disease; but the French surgeons had advocated hysterectomy in order to get at the suppurative disease which was above. They removed the uterus because it was in the way. Some of the American surgeons removed the uterus because they thought it might be a future trouble when both tubes had been removed. Neither theory, it seems to me, was exactly correct.

I have always maintained that if the tubes and ovaries were removed

for suppurative disease, and the uterus was kept in normal position, the drainage from it would be perfect, and no trouble would follow; and that it was an unsurgical suggestion that the organ *in toto* be removed, simply because one feared later trouble in it. When men were operating through the abdomen for every case of pelvic suppuration their results were often bad, or indifferent, because it is impossible to remove from above, and properly drain the pelvis with multiple abscesses in various places. The drainage through the vagina by leaving the uterus in was not very satisfactory, and so the uterus was removed, and the complete drainage thus established gave much better results in cases of pelvic abscess. This was not because the uterus was at fault when left behind, but because the drainage was so much more complete when it was removed.

Hysterectomy, therefore, for suppurative disease of both tubes was strongly advocated by a large number of surgeons. The vaginal drainage, however, was the thing that made results so much better—not hysterectomy. Drainage secured with the uterus left in is a distinct step in advance, in the treatment of those cases of general pelvic infection, which form a considerable percentage of all the cases of salpingitis.

Vaginal incision and drainage is better than the French method, because it can be done more safely, and also for the reason that in many in-

stances this simple procedure cures the woman; and in the few cases where it fails, the patient has a much better chance for a hysterectomy or abdominal section. It was unsurgical in theory to remove a comparatively sound uterus in order to get at the disease in a tube above.

Dr. Henrotin, of Chicago, first made clear the method of vaginal incision and drainage, and put the operation upon a scientific basis; making it a complete operation by itself, differing entirely from the former methods of puncture through the vagina, or aspiration through the vaginal wall, or even the attempts at operating through the vagina for the removal of the ovaries,—all of which have been done by various surgeons, indeed, by all men who could properly claim much knowledge of gynecology. The operation was received with great enthusiasm by timid men and occasional operators through the abdomen, and all sorts of cases were tried with the natural result that follows the adoption of any new operation. Any one operation may not be applied to all suppurative conditions.

While it is undoubtedly safer for an occasional operator to make the vaginal incision than it is to attempt a laparotomy, it is equally true that the results obtained depend as much upon the skill and experience of the operator in the one case as in the other; and the accidents which occur during vaginal operations requiring immediate

laparotomy to save the life of the patient, are by no means uncommon.

In one class of cases which I have not yet mentioned, it seems to me, that vaginal incision and drainage is a much more safe operation than any other, and one that offers great opportunity to save life. I mean those cases of general septic peritonitis following childbirth, or abortion, in which hysterectomy has proved of so little use, and abdominal section has also given such bad results. I have not seen one of these cases since I began to do systematic, vaginal *cœliotomy*; but I believe that these wretched cases would many of them be saved by opening boldly into the peritoneal cavity from below and draining thoroughly. The testimony of others, you have probably seen, has been most favorable to this procedure. As to the operation itself, I think the safety lies in the rigid attention which must be given to the *technique*, to prevent sepsis from without. Besides the repeated bichloride douches and shaving the parts, which can be done by the nurses, I use tincture of green soap and hot water, distend the vagina, and thoroughly apply the soap, rinsing with hot water for several minutes. Then the bichloride is used, the cervix is made as clean as possible, and the uterus is curetted and packed with iodoform gauze. All these instruments are then discarded, and thorough irrigation with bichloride of mercury is again employed; both lips of the cervix are caught by the large

French traction forceps, which effectually seal the uterine canal for a time. The incision is then made in the median line from the junction of the vagina with the posterior lip of the cervix, directly backward for about two inches. This wound is caught on each side by long slender forceps, which steady the wound and prevent bleeding; and then with the finger the cellular tissue is pushed away from behind the uterus. If the abscess cavity is reached, it is thoroughly opened and irrigated before the peritoneum is opened. One avoids the uterine arteries in this way, and the ureters, which I have never yet wounded. Frequently, several pockets of pus are broken up, cleansed, and drained, without opening the peritoneum at all.

If, however, the tube cannot be reached, and one is not certain that all foci of pus have been removed—and this is usually the case—or if the uterus is bound by adhesions in a retroverted position, then the peritoneum is pushed through, the finger being often sufficient, sometimes aided by a pair of blunt scissors, working against the palmar surface of the finger. The fluid which escapes usually indicates that the peritoneal sac has been punctured; the finger at once enters, breaks up any adhesions, lifts the uterus forward, explores the broad ligaments, draws down and distends the tube and allows it to be tapped; or a tube and ovary may be delivered from the wound, tied off, and removed.

If the mass is found to be tuberculous, as has happened to me on several occasions, the cheesy mass may be scooped out with a dull spoon curette, and the cavity within reached and wiped dry; a roll of weak iodoform gauze placed within the peritoneal cavity, and the large gauze drain allowed to project into the vagina. I do not irrigate the peritoneal cavity because I think it is safer to allow whatever pus may have been distributed in the immediate field of the operation, to be trapped by the gauze and rendered sterile, rather than to have it carried by a stream of water to some place where it cannot find a rapid exit.

An alarming hemorrhage usually means that a uterine artery has been torn or severed. If there are no firm adhesions against which to pack gauze, the only safe thing to do is an immediate laparotomy to catch the bleeding vessel. This accident has happened to me but once. While the hemorrhage was terrific, it was soon controlled by a tampon. I have pushed my finger into a soft mass of cancerous tissue, which bled terrifically, but knowing the uselessness of a laparotomy, I relied on the gauze tampon and had no ill result. Curiously enough, this woman improved very rapidly after this simple procedure. The terrible pain which she had had for weeks stopped, and she was in a comfortable condition when she left the hospital, dying some weeks later apparently from infiltration into the lungs.

A small cyst in an ovary may be brought down into the wound, and tapped, and the ovary replaced. Adhesions can always be broken up and the uterus thus released, put in position and held by a tampon of gauze behind; and it will usually remain in good position afterward—held, I presume, in part, by the new adhesions which are formed outside the gauze tampon.

I have seen so many cases of apparently hopeless suppurative disease so thoroughly cured by this simple process, that I feel that the operation is a distinct advance upon previous methods; and I believe that the results show that it is not the infected uterus remaining after a double salpingotomy that causes trouble later on, but that it is the imperfectly drained pelvis, which leaves certain infected spots, in which future inflammations may be easily lighted up.

In cases of large boggy swellings, where masses the size of a cocoanut, of recent origin, have been opened into and drained, and nothing but sero-purulent discharge obtained at the time of the operation, gauze drainage has seemed to act like a seton, causing entire disappearance of the mass, and the apparent recovery to complete health. I am convinced that it is the malposition of the uterus, and the consequent prolapsus of the ovaries, preventing anything like complete drainage of these organs, that so often determines the location of the inflammatory mass within the



pelvis. These tubes often leak, causing simple inflammatory exudates of great strength; or if the uterus is infected, then abscesses either within the tube or beside the broad ligament may form; so that it is useless to expect complete restoration, without thorough drainage of the diseased area, and also complete reposition of these organs, and their maintenance in normal position.

Hence, it is better to operate through the abdomen in cases of in-

veterate retro-deviation of the uterus, or prolapsus, where there is no evidence of pus within the pelvis, and to remove a cystic ovary or badly diseased tube, and stitch the uterus forward to the abdominal wound, than it is to attempt any vaginal operation.

In ectopic gestation, where the hemorrhage is recent, or even continuous, the abdominal operation is by far safer; and as before intimated, movable cystic salpingitis is much better treated by abdominal section.

## SHOCK AFTER ABDOMINAL OPERATIONS AND HOW TO PREVENT IT.\*

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THE inspiration to write this paper was derived from a remark made at our last meeting by one of our most distinguished surgical members that we did not know exactly what shock is. As my own views as to the nature of shock have assumed a very definite form during the last year or two, I now place them on record with the hope that they may lead to a better general understanding as to what shock really is, and how best to prevent it. If by so doing my own or some other operator's death-rate should be reduced by even one per cent I would feel quite

satisfied that my labor had not been in vain.

As I mentioned at the meeting referred to, the word shock has long been employed to cover a multitude of sins. This is especially the case in abdominal surgery, and as most of my experience has been obtained in this department of our work, my remarks will especially apply to shock after abdominal operations; although what is true of them is true also, in a lesser degree, of the surgery of the thorax, brain or limbs.

Properly speaking the term shock should be applied only to a vivid impression or powerful irritation of the

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great sympathetic nerve leading to a forcible contraction of the arterioles of the surface and throughout the body, including the cerebro-spinal system, and a corresponding rush of blood into the great venous trunks, especially in the abdomen, which we know are capable of holding all the blood in the body.

As an instance of non-surgical shock, might be mentioned the effect of some horrible sight upon the great sympathetic nerve in women, in whom this nerve is more highly developed than in men. The arteries of the skin contract and it becomes pale, and the body surface becomes cold; the arteries of the brain contract and for want of blood it ceases to act, the woman becomes unconscious and swoons. And yet nothing has touched her except the rays of light from the horrible object or ghastly sight which have fallen upon her retinae.

As an instance of surgical shock might be mentioned a moderate blow upon the testicles or abdomen, which is followed by deathly pallor and insensibility to painful or other impressions. If the abdomen were to be opened just at this time the arteries would be found partially emptied, although the patient has not lost a drop of blood; the latter having poured into the large veins. At the moment of tying or cutting any large trunk of the sympathetic, such as happens in the removal of the ovaries or testicles, his impression of the whole sympathetic takes place to some extent as

those who are watching the pulse have often remarked to me. The pulse grows fast and the face becomes pale, but only for a moment, the spasm of the arteriales being quickly followed by a relaxation or paralysis, leading to flushing and slowing of the heart's action. Another instance in which the term shock can be less correctly applied is when a very large quantity of fluid or a very large tumor is suddenly removed from the abdomen, the support which the abdominal veins have in the course of months or years gradually grown accustomed to is thus taken from them. There is a rush of blood into these unsupported veins and the same phenomena are observed as when the great sympathetic is irritated. And yet this is not really shock, because it is not a nervous condition, but more truly a hemorrhage. This variety of shock, which has killed many a patient in former times, when large tumors were plentiful, can be easily prevented in several ways; first by removing gradually the pressure to which the veins have been accustomed, by emptying very large cysts when possible on the day previous to the operation, by tapping with a small trochar, as I did on one occasion in an old lady from whom I extirpated two large carcinomatous ovaries weighing five or six pounds each, and who was besides greatly distended with ascitic fluid; two buckets of water were removed in two hours without any inconvenience, and next day the operation was performed absolutely with-

out shock, the patient speedily recovering from the operation. When the tumor is solid and cannot be lessened in size by tapping, there are two other means of preventing this form of shock, or hemorrhage into the veins. One is by performing these abdominal operations with the patient in the Trendelenburg posture, so that the blood from the limbs and even from the abdominal veins, may flow by gravity towards the heart and brain; and the other by filling the abdominal cavity, immediately on removing the tumor, with normal salt solution, which not only supports the thin-walled veins, but also, by osmosis being absorbed, so fills the vascular system that the abdominal veins may be filled with impunity. Still two other methods have been employed in my cases with advantage: one being to have an assistant trained to transfer normal salt solution, one teaspoonful to the pint, directly into the median basilic vein; the other, which I employ almost constantly, to gently inject a quart of normal salt solution into the rectum with a fountain syringe, hung only a foot or two higher than the rectum, so that, entering slowly, the liquid may be tolerated and absorbed, which would not be the case if it were injected quickly. As a preventive measure, it is, I think, important to send our patient onto the table with the vascular system well filled by inducing them to drink large quantities of water *alias* beef tea and chicken broth, on the day or two be-

fore the operation, so that the inevitable loss of blood will not be too greatly missed. This brings me to the point where I wish to enforce my deliberate conviction that the majority of deaths from so-called shock are really due to hemorrhage; either before the operation, as in ruptured tubal pregnancy; during the operation, as in removal of segments of intestine, and of tumors bound down and surrounded by many and vascular adhesions; or hemorrhage, after the operation owing to slipping of ligatures off their stumps, or the slipping of the artery off of the ligature, by retraction. I have had one or more deaths from each of these causes, and it is with regret, not however unmingled with hope, that I confess that they were all preventable, and that they will probably never occur again in any patient of mine. If we know anatomy we can find the arteries and tie them before cutting them. In my last case of total abdominal hysterectomy for cancer, the two ovarian, the two uterine and the two round ligaments, which sometimes bleed a good deal, were felt for and tied individually before cutting the broad ligaments, so that the uterus was removed without the loss of as much as four ounces of blood, and there was a total absence of shock, the pulse being just as good at the end of the operation as it was at the beginning. The same method should, I believe, be applied to all surgical operations involving the cutting of arteries, to tie all the principal

sources of blood supply before cutting; if this were done, many of the most bloody operations would become almost bloodless, and death from so-called shock would become almost a surgical curiosity.

Some physiologists may here raise the objection that deaths from operative shock are known to have occurred where the quantity of blood lost was not more than is frequently lost with impunity from non-operative hemorrhages. A woman, for instance, may lose three quarts of blood in three weeks from a bleeding fibroid every month for several years, and is still able to go around and attend to her duties; and yet at the operation for removal of the tumor and uterus she may lose exactly the same quantity of blood in five minutes, causing her death upon the table. Although the physiologist may tell us that she has died from shock, she has really died from hemorrhage. With the same loss of blood the patient's life may be lost or not according to how long a time the hemorrhage is spread over; in the former case she is losing only nine and a half drops in five minutes, a quantity which she can easily replace, while during the operation the whole three quarts may be lost so quickly that the arterial pressure falls so low that no blood is forced into the coronary arteries, and the heart muscle stops for want of food. This is why the heart will not beat when there is only a small quantity of very rich blood in the arterial system; and

why it will beat indefinitely if the arteries be full of the very poorest quality of watery blood. Teachers of physiology do not perhaps lay sufficient stress upon this fact when teaching the functions of the heart; if they did there would probably be fewer deaths from what is often called shock; many patients go on the operating table with almost empty coronary arteries, who might have them filled beforehand by the means already mentioned; while other patients who die during the operation, or soon afterward from empty coronary arteries, might be saved by filling the abdomen or even injecting the veins with normal warm salt solution. It is of great importance in abdominal operations that the intestines be thoroughly emptied in order that they may be out of our road while operating and also that it may not be necessary, owing to their distension, to turn them out of their natural cavity; but in emptying the intestines with cathartics, especially with saline solutions of greater density than the blood, we must take care at the same time not to empty the coronary arteries of the heart. I have dwelt at some length upon the circulatory changes which lead to so-called shock because I believe that there is in certain quarters too great a tendency to attribute most of the ills that flesh is heir to, to disorders of the nervous system. With but few exceptions the nerves are never any better than what their blood supply makes them; and so the



beautiful ganglia of the heart and the still more wonderful structure of the brain are absolutely useless without a constant supply of blood. There is another cause of shock which is not always sufficiently recognized, namely, prolonged anæsthesia. On the one hand we know that shock is a depression of the vital functions, while on the other we have the original investigations of Dr. Gordon Campbell, a distinguished member of this Society, which prove that the vital functions begin to fail from the first moment that anæsthesia begins. By the careful analysis of urine drawn at the end of each hour he has shown that the quantity of urea diminishes, which is just exactly what we might expect; for life is merely combustion, and like every other fire it goes out when its supply of oxygen is shut off or is replaced by carbonic dioxide. Can any one say that this does not occur with the Clover inhaler and, indeed, to some extent with any inhaler? How can it be otherwise when the patient receives but two breaths of air in every three, and not good air at that; not fresh country air or even deteriorated city air; not even the bad air of the hospital, but the worst air of all, that of a crowded operating-room; two inspirations of air and of ether, and this during several hours, sometimes? Is it any wonder that the vital fire burns low and that urea decreases? This, I presume, is inevitable, unless some anæsthetist genius should devise a plan to provide the patient with a life-

sustaining anæsthetic mixture of oxygen and ether. From that moment my objection to the Clover inhaler would cease, for our investigating member will then find, when he analyses the urine, that the uric acid has disappeared and that the urea has increased. Until that time comes it is our duty to cut down the duration of the anæsthesia by every means in our power, saving here a minute and there a minute wherever it can be done without neglecting the minutest details of asepsis and hæmastasis.

When I heard of the low death-rate of Joseph Price and Howard Kelly I lost no time in placing myself under their instruction and I soon perceived that rapidity of operating played no small part in their success. In the case of the latter, who was surrounded by skilled assistants, every operation being a continuous performance, there being at no time any consecutive five seconds without something being done; and it is evident that ten or twelve hands can do the same work in less time than only two, be they ever so skillful. I have tried to imitate him at the Samaritan Hospital, and for what measure of success I have had there I wish to tender my gratitude and praise to my faithful assistants, whose only reward has been the experience they have gained. But I wish once more to make my meaning clear that I am advocating speed, not carelessness in operating. How many operations I have seen, my own in former days among the number,

where useless conversation distracted the attention of nurses and assistants, by which second after second was lost in handling ligatures and instruments. For my own part I would like, if it were possible, that all in the room except the patient would hold their breaths until the anæsthetic has been removed. How I envy the military discipline which pervades the German operating-rooms, where a single whisper is regarded as the grossest breach of etiquette. How I dread the well-meaning fellow who tells a funny story or relates an interesting case, or tells me how to do the operation; if he realized how much he has to do with death from prolonged anæsthesia he would surely hold his peace.

There is another and most important cause of shock, and because of its effect upon the nervous system it causes true shock, namely, prolonged exposure and handling of the intestines. As I have already hinted, this accident occurred more often formerly than now because we take such infinite pains to have the intestines empty and out of sight; not only must they be empty of solids and liquids but they must also be free from gas, so that they lie collapsed at the back of the abdomen. When thus prepared, and with the patient in the Trendelenburg posture, they will be near the diaphragm and quite out of sight. This ideal condition of the bowels can only be obtained by careful dieting, careful catharsis and by the free use of strychnine. I learned

of the surpassing value of strychnine in abdominal surgery at the San Francisco meeting of the American Medical Association, and now I do not know how I could get along without it. Since I have used it the bowels are rarely seen, and if seen they are never touched or handled, a hot sterilized towel being placed upon them at the beginning of the operation and not removed until the end. We are frequently requested to perform a serious operation on the same day that the patient arrives in from the country, so that the family physician and friends may get away by the afternoon train, with the knowledge that the dreaded ordeal is over; it need hardly be said that it would be rash to do so; all these cases should be in bed in a public or private hospital at least three days beforehand; otherwise we may impart shock from exposure and handling of the intestines.

One more common cause of shock and I shall have done. During prolonged operations, while the patient is surrounded with towels wrung out of hot antiseptic solutions, there is sometimes great cooling of the body temperature. As has been already said the body furnace is burning low because not only is the damper closed but the fire is choked with carbonic dioxide, so that in addition to the wet cloths and wet clothes another serious factor of vital depression is added, namely, the cold sweating which always accompanies carbonic acid gas poisoning. This sweat turns into va-

por as does the water spilled upon the patient and evaporation is always accompanied with loss of heat. Under these conditions there must be if not genuine shock, at least great lowering of vitality. It can be avoided by covering the patient with a sterilized rubber sheet with an opening in the centre, and upon this the sterilized or antiseptic towels are placed, so that no drop of water gets upon the patient's clothing; and secondly by having zinc pans made the size of the operating table about two inches thick, which are previously filled with hot water, so that the patient's temperature may be kept up. When the water becomes cool during a long operation a few gallons are drawn off from an opening underneath and as much hot water added by an opening on the top, all of course without delaying the operation for a single moment. I made this suggestion about three years ago to my late lamented friend, Professor Fenwick, of Kingston, who at once carried it out and I saw it in use in his operating-room shortly before his death. The diagnosis between shock, hemorrhage and sepsis is beset with difficulties, because they are so often complicated, one with the other; but this alone would occupy the time allowed for a paper. I might just say that the low temperature and rapid pulse of shock alone take place on the table and quickly improve when the patient is placed in bed and surrounded with hot bottles. A fast pulse without a low temperature means hemor-

rhage; a fast pulse with a rising temperature generally means sepsis; if the hemorrhage is going on the pulse will grow softer and more rapid; in sepsis it will grow stronger, or at least maintain its strength. As a rule the temperature will help us but little, our main reliance being placed upon a careful study of the pulse before and after the operation.

#### CONCLUSIONS.

To sum up: shock is a powerful irritation of the great sympathetic, causing anæmia of the brain and heart and lowering of temperature.

2d. The same results may be obtained by too much blood being lost during an operation owing to defective hæmastasis.

3d. The same results may be obtained by hemorrhage into the abdominal veins by the sudden removal of large tumors or quantities of ascitic fluid.

4th. Shock is often due to prolonged anæsthesia in a badly-ventilated room. Not a moment should be wasted during anæsthesia.

5th. Depression of vital powers may also be due to prolonged exposure in wet clothing; the patient should be kept warm and dry.

6th. Anæsmia of brain can be prevented by operating in Trendelenburg posture; anæmia of heart can be prevented by having the arteries well filled before the operation, and by filling the abdomen with normal salt so-

lution during the operation, or by rectal enemas of salt solution after operation.

7th. The administration of strychnine in doses of one-twentieth of a grain for three days before and three days after the operation diminishes danger of shock, partly because it keeps the intestines contracted and thus saves them from being handled;

partly because it stimulates even a badly fed heart to contract.

8th. Important organs such as the uterus, or kidney or even large segments of intestines can be removed almost without shock provided the operation is performed quickly, with little hemorrhage, and without much handling or exposure of the intestines.

250 Bishop Street, Montreal.

### DYSMENORRŒA.\*

ARTHUR JOHNSTONE, M.D.

CINCINNATI.

THERE are two immediate causes of dysmenorrhœa: First, pelvic inflammations and their results; and second, anything that causes painful contractions of the uterus. The two most potent remote causes of dysmenorrhœa are infection and arrested development. Before going into the full discussion of this subject, let us look a little at the conditions in which we find its literature, and see the necessity for some new and more thorough understanding of its varied manifestations. It has been at least twenty-five years since the present classification of dysmenorrhœa was first formulated. As a student in '74, I found Thomas of New York teaching the same classification which we now hear every day, and with very slight modification nearly all teachers have followed him down to the present time.

Some of the later text-books, however, have been diverging from it, but nowhere have I seen a systematic treatise on the subject. At the time this was formulated, our views of pelvic pathology were very hazy indeed; in fact, we knew absolutely nothing about pus-tubes, nothing about small cystic ovaries, and such a thing as pelvic adhesions was unheard of. Pretty near all we knew about it was that the uterus ought to be a more or less fixed organ and occasionally had inflammation around it, and on the other side of the uterus ovarian tumors might grow. At that time tears of the cervix were called erosions and as you know burnt and sacrificed *ad libitum*. Whenever what we now know to be an old pus-tube was waked up by these performances, we called it the will of God and an extension of pelvic cellulitis. Since that time, however,

\* Read before the Cincinnati Obstetrical Society.



the pathology of the pelvis has been worked out until now it is as well understood, if not better, than any other part of the body. Also, we have a better idea of what the normal organ ought to be; and by contrast, the arrested growths and other shortcomings have been classified and are now well understood. Nearly a generation has passed by and still we find ourselves using the same old terms. I am free to confess that when I first began to apply this classification in actual practice, I found it misleading, unnatural and altogether disheartening. My greatest objection to it was, that like mixed metaphor, it did not stick to any one particular rule, but some forms of dysmenorrhœa were named from the cause and others were named from the effect, which all did very well when our knowledge was so crude. But the time has come when it should be reconstructed. If we expect students to learn rapidly and understand thoroughly what we are talking about, many of the old terms must be dropped and some of them sink into deserved oblivion.

As my opening sentence divides all dysmenorrhœa into two great physical classes, their counterparts or shadows are shown by two great clinical classes. The division line between these two is the beginning of the flow. The first great class is that which comes on several days before the flow begins, increases steadily with the increase of the Stephenson pressure but gets al-

most immediate relief by the beginning of the discharge and by the time the flow is over the patient is almost, if not perfectly, comfortable. The other class is that in which the pain comes on with the flow; in many cases it comes on several hours after the flow has begun, and in some it waits even for several days. This represents the second clinical class. So if I were to give them a name, I would call one a pre-menstrual pain and the other a co-menstrual pain. But in a general way, you know, we have been calling both of these indiscriminately "dysmenorrhœa." Unfortunately, in many of our worst cases we may have both kinds of pain; but if we will stop and look at the pathological conditions, we will find the reason why. Pre-menstrual pain to me always means pelvic mischief outside of the uterus, either an active state or some sub-acute or almost passive condition which has been left by some preceding inflammation. When you understand the Stephenson wave thoroughly, you cannot help but know what this means. Some old congested spot is pressed upon and irritated by the increased column of blood, just exactly as an old sprained ankle gives pain when it is allowed to hang down. It is nothing but congestion of an inflamed spot. The reason the pain is so promptly relieved by the beginning of the flow is that this tension is let off by the discharge of blood into the sponge-like tissue of the endometrium and of course the

tension in the peri-uterine tissues at once become less. This is a typical case of the pre-menstrual pain. The pain that comes on with the flow is produced in a totally different way and is usually of an altogether different character. Instead of being the aching throb of the ante-menstrual pain, it is a periodic, irregular, bearing-down, grinding pain, which very closely simulates labor pains, and anybody who has sat by the bed-side will see the close analogy between this and labor. And any one who has ever taken the trouble to examine the patient when these pains are going on, will feel the uterine contractions just as firmly as he will when watching the dilatation of a parturient uterus. The reason, though, that these two pains trench on each other and get mixed and many times you will have both in the same patient, is easily seen. If the inflammation in the pelvis is very general and acute, there is not enough flow from the cavity of the uterus to relieve this tension, and the consequence is when the blood begins to clot, when the membranes are cast off and the uterus begins to contract, you have added to the aching throb that went before the congestion began to relieve itself, the colicky pains induced by the spasmodic contraction of this non-striated muscle. Nothing like enough attention has been paid to this contraction of the involuntary muscle as a cause of this pain, and with that clearly understood I think we are in a fair way to under-

stand just what dysmenorrhœa really is. The contraction of the uterus when it is irritated and inflamed, is very similar indeed to the strangury produced by an irritated or inflamed bladder. Any of you who have done much genito-urinary surgery and have sat by and watched a young man with a strangury, will feel perfectly at home when he comes to sit by the side of a girl who is suffering with what we used to call "obstructive dysmenorrhœa." The clinical picture is almost identical and the physics of the two things are very, very similar. It is an involuntary muscle which is irritated up to the point of violent contraction. So then, to give two analogies by which to classify the two forms of dysmenorrhœa. I should say the dependent ankle that has been sprained is the pre-menstrual pain, and strangury of the bladder is the co-menstrual. With this condition thoroughly understood, it now becomes a very easy matter to work out the different causes that will produce dysmenorrhœa. To give all the causes of ante-menstrual pain, I would have to go over all the varied forms of pelvic inflammations. I would, also, have to go further back and show how these inflammations start. The role that gonorrhœa plays you are all thoroughly familiar with. Infection from the streptococcus, colon bacillus and all other hordes of bacilli, that have been so carefully and thoroughly worked out in our bacteriological laboratories, come under the one head of infection.

I would, also, have to stop and trace the various steps by which pathology renders this infection possible. In many cases I would have to begin in the childhood of the girl, when by some attack of measles, scarlet fever, typhoid, tuberculosis or other wasting disease, the development and growth of the organs was prevented and they were left in an infantile condition. All these predispose to infections and congestions. In fact, I would have to work over the whole subject of the pathology, with both the immediate and predisposing causes, which, of course, would take entirely too much time. Under this head, also, would come flexions and versions, because from my standpoint they are only accidental coincidents in the march of some general pathological process. When it comes to the co-menstrual pain, though, thousands, yes, I may say millions, of pages have been written on the subject. This includes the vast majority of the different classifications of dysmenorrhœa, which includes the "membranous," the "obstructive," etc. But the simplest way to think of all these is that it is nothing but infection at last. Some of my hearers may doubt this; some may claim that the pin-hole os is in itself a cause of dysmenorrhœa, but if it is so I have yet the first case to see. For one reason or another, I have seen not less than a dozen cervixes which would scarcely admit a bristle, which had never given an ache nor a pain. Every one of this dozen showed no

signs whatever of inflammation or infection in any way. I have some patients under observation yet, who had come to me for rectal troubles or some other little thing which did not point directly to the uterus, and there has never been a sign of dysmenorrhœa and nothing has been done to the cervix. I have many a time, though, had to dilate these pin-hole crevices, which showed no inflammation on the outside, but the moment they were opened up I would find a plug of mucus or more or less pus up in the cavity of the uterus, showing the narrowing had converted the cavity into a retention pocket and the infection had begun above, instead of traveling up from below, as is very often the case. So I have come to look upon the pin-hole os merely as a predisposing and not an exciting cause of dysmenorrhœa, because in my experience, infection always occurs before the uterus becomes irritable. This paper would be stretched out to an outrageous length if I were to attempt to give all the varied forms of infection that may invade the uterus from the cervix. It is enough to know that there has been an infection, whether it comes from the invasion of germs simple and alone which produces what we call catarrhal condition, or that there has been a tear, or that there has been an infection after labor which has left a subinvolution. Every one of these conditions, when freshly congested by the flood tide of the Stephenson wave, is enough to irritate the muscular

fibres and start them to contracting. What has been called "membranous" dysmenorrhœa, you can all easily see would make a very irritable uterus. But in passing I may as well state my ideas of its pathology. In most cases it is an arrested development, in which the lining membrane of the body of the uterus does not go on to the ripe adenoid state, and instead of forming a tissue closely analogous to the lymphatic gland, which can be readily broken up and passed out in the shape of a thick mixture of fibres and cells carried in blood, it is stripped off *en masse* and passed in the form of a more or less complete decidua, for its tissue is so tough it is impossible for the blood to break it up, and that is all there is about it. It is very rare, I am glad to say; and though stubborn, I have never yet seen a case that was not amenable to treatment, and I have succeeded in curing absolutely, by thorough curetting and very tight tamponing of the uterus, several cases on which some of my confreres have failed. So much for the gross lesions, that are easily made out, that any one who knows what the normal ought to be can easily appreciate.

The one great stumbling-block, though, in the old classification, was "neuralgic" dysmenorrhœa. This was the waste basket in which all cases were dumped that were hard to diagnose. Having such a convenient scapegoat as this, the tendency used to be, when you could not readily

make out what was the matter, to classify it "neuralgic," and at once go to giving the patient constitutional remedies. Thereby the profession generally was taught to think that there was a great class for which we could do absolutely nothing. However, in the last fifteen years, since we have learned the pathology of the higher pelvic planes, we have come to look more closely for the ante-menstrual pain, for it is a sure and safe guide to obscure lesions which cannot easily be made out by the eye or touch. I have never yet seen it fail, that when a case gave a clear history of the pain preceding the flow and relieved by that flow, when finally I was forced to open the abdomen for relief I would find some old pelvic lesion, cirrhotic ovary or degeneration of the broad ligaments. This at once sweeps away the vast majority of what were once called "neuralgic" dysmenorrhœa. It has been found the reason that many of these cases date from puberty in arrested development of one kind or another, of the appendages, broad ligaments or the fundus of the uterus. As for the small remnant left from this elucidation of the subject, in my own practice I cannot recall a case in the last fifteen years, of inveterate dysmenorrhœa of either kind that I did not find the lesion to account for. Since I have come to the simple conclusion that the co-menstrual pain after all is caused by the contraction of non-striated muscular fibre, I can see how it is possible for



this muscle to be set going by some toxic irritant, just as a weak bladder may be set going by some irritating substance in the blood or passing out through the urine. Thanks to Dr. Rachford, with his investigation of the xanthine compounds, I have come to a much clearer understanding of what these old rheumatoid, gouty conditions may be. I am sure that many of my cases are aggravated by the paraxanthine, but I must state that I have never yet seen a non-infected pelvis in which there was a true dysmenorrhœa from any source. But I can easily see how in the bilious condition induced by paraxanthine, it is possible for the uterine muscle to be set going, for in many of these paraxanthine cases there is scarcely an involuntary muscle in the body which does not become irritated by them.

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Some discussions we have recently been having in the Obstetrical Society have brought up the question of fact of just how often so-called "neuralgic" dysmenorrhœa does occur. I took the ground that in handling the same cases I have had, any man would have missed his diagnosis who would have found a single case of "neuralgic" dysmenorrhœa. It was really amusing to hear the variations in opinions, running all the way from none at all up to 60 or 70 per cent of all dysmenorrhœas being put down as "neuralgic." To test the question of just what proportion do occur, I wrote the following letter to

twenty-eight of the leading gynæcologists of this country:

DEAR DOCTOR:

I am working on a paper in which the question of neuralgic dysmenorrhœa is involved. Will you please tell me what proportion of dysmenorrhœas, as you see them, are caused by pelvic conditions?

Hoping you will give me the right to print your opinion, I am,

As ever, yours,

A. W. JOHNSTONE.

I have here eighteen replies, which in themselves form a very valuable contribution to the subject.

47 East 34th Street.

DEAR MR. JOHNSTONE:

I am compelled to confess that I am unable to recall any case of dysmenorrhœa not of pelvic origin.

Yours sincerely,

WILLIAM T. LUSK.

Nov. 6, 1896.

89 Madison Avenue.

DEAR DOCTOR:

I have been too busy a man in late years to have kept any statistics, but I have long held the opinion that dysmenorrhœa was alone due to pelvic congestion, or to inflammation where the pelvic peritoneum had been involved. I do not know what is meant by the term "neuralgic dysmenorrhœa," unless it be to indicate a dysmenorrhœa with anæmia, a condition which generally causes neuralgia in other parts of the body. But in my observation an anæmic female does not necessarily suffer from dysmenorrhœa if she has had no local trouble. If you can get hold of the last edition

of my book on the Principles and Practice of Gynæcology, you may find there some statistical points which may be of interest.

Yours very truly.

THOS. ADDIS EMMET.

Nov. 8, 1896.

716 Lexington Av., New York.

Nov. 6, 1896.

DEAR DR. JOHNSTONE:

Your letter of 3d inst. received. I do not know if I understand your question right. "What proportion of dysmenorrhœas are caused by pelvic conditions?" Is it your idea to distinguish between purely neuralgic dysmenorrhœa and dysmenorrhœa found together with palpable deviations in the pelvic organs (uterine flexions, salpingo-oophoritis, etc.)? If so I must say that I do not see in my practice dysmenorrhœa without organic changes.

Yours very truly,

H. J. GARRIGUES.

Boston, Mass., Dec. 11, 1896.

DEAR DOCTOR:

I very seldom see a case of dysmenorrhœa which has any claim to be called neuralgic. Either there is some inflammatory pelvic condition, or some adhesion holding down the ovary, or there is a flexion with a narrow os uteri, or there is a distinct uterine catarrh with tenderness of the organ, or there is a spasm of the muscular tissues of the cervix, or in the worst cases where no lesion can be found before the operation, there is a condition of cirrhosis of the ovaries. Of course some women complain more of pain than others, and when they are weak or nervous and irritable they complain more; but when there are really severe symptoms of dysmen-

orrhœa, I consider the term neuralgia to be merely an *asylum ignorantiae*. It merely shows that painful menstruation is caused by pain in the nerves, so in other words saying that we do not know anything about it; as it would never do to say that, however, I consider that the term neuralgic dysmenorrhœa has a practical value.

"Denn eben wo Begriffe fehlen,

Da stellt ein Wort zur rechten Zeit sich ein."

You may make whatever use of this communication you see fit.

Very sincerely yours,

E. W. CUSHING.

Philadelphia, Dec. 15, 1896.

MY DEAR DR. JOHNSTONE:

I am sorry that your favor of Nov. 3d has been overlooked.

In reply to your question, "What proportion of dysmenorrhœas, as you see them, are caused by pelvic conditions?" I will say that it is my belief, founded upon considerable experience, that the generative organs are almost invariably defective at some point, when menstruation is continually painful. Conditions of the nervous system modify the pain, but treatment directed to the improvement of the local condition has invariably given better results than that directed simply to the upbuilding of the system.

Very truly yours,

B. F. BEAR.

P. S. If this is not just what you wished please let me know and I will write more fully.

Chicago, Ill., Nov. 6, 1896.

DEAR DR. JOHNSTONE:

I have never kept any records of dysmenorrhœa except to record it as

a symptom of my cases of pelvic disease. I think that nearly all of the cases of dysmenorrhœa that have come under my care have been caused by pelvic conditions, although I have seen many cases in which a slight dysmenorrhœa was exaggerated by nervous conditions.

I am sorry that I have no more definite data.

Very truly yours,  
HENRY T. BYFORD.

Should say most of the cases had pelvic causes. Some few originate in neuralgic and rheumatic habit, anæmia, etc.

TABOR JOHNSON.

Allegheny, Pa., Nov. 10, 1896.

MY DEAR DOCTOR:

In my opinion the term "neuralgic dysmenorrhœa" should be dropped, and the term "neurotic dysmenorrhœa" should be substituted; by the latter term we should understand that form occurring in women of neurotic condition, and whose neuralgic pains are not confined to the pelvis. When the paroxysms of pain are confined to the pelvis, I think that the term spasmodic dysmenorrhœa is the proper one.

Yours ever,  
R. STANSBURY SUTTON.

7 East 36th Street.  
Nov. 13, 1896.

DEAR DOCTOR:

In answer to the question contained in your letter of Nov. 3d, as to the proportion of dysmenorrhœas (as I see them), caused by pelvic conditions, I beg leave to say that the large majority of my cases are dependent upon the state of things within the uterus,

stenosis being one of the most common causes.

With kind regards, sincerely yours,  
W. M. POLK.

191 Madison Av., New York,  
Dec. 10, 1896.

MY DEAR DR. JOHNSTONE:

I received your letter of inquiry a month ago, but at first I thought I could hardly give you even a guess as to "what proportion of dysmenorrhœas are caused by pelvic conditions," *i. e.*, in my own work and within my own observation. I have been thinking the matter over somewhat lately, and from recollection principally I should say that a great majority of my cases have been associated with, or dependent upon some pathological condition within the pelvis, a good part of this majority being due to some displacement of the uterus, either congenital or acquired, which mechanically interferes with the flow. Others to intra-uterine changes, pathological conditions of the endometrium and cervix. I should say that but a small percentage are due to a purely nervous perversion.

Hoping that you will succeed in throwing a good deal of new light upon the subject, and with kind remembrances, I am,

Yours sincerely,  
J. E. JANVRIN.

Baltimore, Nov. 7, 1896.

MY DEAR DOCTOR:

Your favor of the third has been received.

From my personal experience with dysmenorrhœa I should say that the ætiology of this condition, so far as I can trace it, is about as follows:

Mechanical dysmenorrhœa 70 per cent  
 Dysmenorrhœa dependent upon  
 inflammatory and structural  
 diseases of the tubes,  
 ovaries and pelvic perito-  
 neum ..... 20 per cent  
 Ovarian or neuralgic dysmen-  
 orrhœa, ovaralgia, no signs  
 of intra-pelvic lesions . . . 5 per cent  
 Congestive dysmenorrhœa due to sud-  
 den stoppage of menstrua-  
 tion, colds, etc. .... 3 per cent  
 Membranous dysmenorrhœa 2 per cent

This mechanical or obstructive form, due to flexion and stenosis of cervical canal, I find very common. In this form tubal and ovarian disease is often present.

Pelvic conditions, *i. e.*, tubal and ovarian diseases, chronic pelvic peritonitis, adhesions, etc., will account for at least 20 per cent, if not more.

Neuralgic dysmenorrhœa pure and simple is, in my experience, very uncommon, and the same holds true of membranous dysmenorrhœa. It is often difficult to trace dysmenorrhœa to its true cause, and I am inclined to think that intra-pelvic disease is often present in cases where no physical signs are present.

I have removed the tubes and ovaries in some half dozen or more cases for violent dysmenorrhœa where no physical signs of disease were present, or I should say were not recognized before the section. Three patients recovered and were cured. The ovaries were found diseased but not enlarged. Small hæmatomas, not larger than a filbert, were found in three cases. Several years ago I removed one ovary which was a simple shell containing fluid, no enlargement. Patient was cured. This woman has since borne a child, though

sterile nine years prior to operation. Last year I removed both ovaries for painful menstruation. Ovaries were not enlarged, there were no physical signs of disease. I found in each ovary a fibrous mass as large as a filbert, as dense as cartilage. Patient recovered and now entirely well. I must believe that minor lesions often exist to account for dysmenorrhœa and that physical signs will fail to show these lesions in many cases. Obstructive dysmenorrhœa is found chiefly in young girls and sterile women. It is a curable condition. Whilst exceedingly common in my experience, there are no lesions but flexions and versions, endometritis and stenosis. I believe the vast majority of these cases will get well after divulsion and curetting, especially if sterility disappears. If tubal or ovarian disease is present the divulsion and curetting will not bring relief. I believe that the proof of intra-pelvic disease is often prevented in those cases where we fail to give relief, by correcting mechanical conditions. We must look beyond the uterus for the ætiology.

You are at liberty to use these observations of mine if of any value to you.

Believe me, very sincerely,  
 T. A. ASHBY.

Baltimore, Nov. 8, 1896.

MY DEAR DR. JOHNSTONE:

In reply to your letter of the 3d instant, I am sorry that I cannot give you direct statistical information as to what proportion of dysmenorrhœas are due to pelvic conditions.

In an off-hand sort of way, I should say that at least 75 to 80 per cent of my cases are readily explained by finding some macroscopic lesion or defect



of the uterus, tubes and ovaries. The most frequent cause are pelvic adhesions; pus tubes and hydrosalpinx also play a frequent part in their causation, and in many cases I am able to demonstrate faulty development of the ovaries or uterus or both, the organs retaining a semi-infantile development.

With best wishes, yours sincerely,  
J. WHITRIDGE WILLIAMS.

Boston, Nov. 7, 1896.

DEAR DR. JOHNSTONE:

It is certainly my impression that a considerable proportion of the dysmenorrhœas which I have seen, have been due to general systemic conditions; but I am unfortunately unable to make any more accurate statement than this. I regret very much my inability to help you.

Yours very truly,  
EDWARD REYNOLDS.

Boston, Nov. 17, 1896.

MY DEAR DOCTOR:

Your question, "What proportion of dysmenorrhœas, as you see them, are caused by pelvic conditions?" is most difficult to answer. I can give you only general opinions.

In unmarried girls I find no local lesion in the pelvis in fully half the cases. A part of these I attribute to a general erethism (neuralgia in a certain sense) in the system, a small number of which persist through life despite all treatment and despite marriage and the birth of children. Many I explain as reflex uterine and tubal contractions due to an abnormally sensitive nervous system or to a hyper-sensitive internal os. I attribute very few to structural obstruction at the external or internal os, either owing to flexion or to stricture.

In sterile married women perhaps one quarter of the cases are attributed by me to other than pelvic lesions, and in married women who have had children I find still few cases due to other than pelvic lesions.

You may publish these statements of opinion for what they are worth, which is very little.

Sincerely yours,  
JAMES R. CHADWICK.

Boston, Nov. 7, 1896.

DEAR DR. JOHNSTONE:

I wish I could give you more definite data for the paper you are preparing. To go over my records to prepare such data, however, would take an amount of time which I cannot devote to it now. I should judge that in my experience fully 2-3 of the cases of dysmenorrhœa were due to pelvic disease. This, however, is the opinion based upon my impression at the moment. You are at perfect liberty to use this opinion if you will incorporate with it, the fact that the opinion is an impression and not prepared from statistics.

Yours very truly,  
W. H. BAKER.

New York, Nov. 24, 1896.

DEAR JOHNSTONE:

Pardon the delay in replying to your favor of the 3d. I do not feel like expressing an opinion which is worthy to be quoted in print, and cannot give exact statistics.

Excluding the obvious ovarian and tubal causes of dysmenorrhœa, I have noted a large class of neurotic women who suffer from so-called "obstructive dysmenorrhœa," but in whom there is really no marked obstruction to the escape of blood. Under ether a fair-sized sound can be passed without dif-

ficulty, and the pelvic organs are apparently normal. The pains are not permanently relieved by divulsion, and seem to be of "neuralgic" rather than actual local origin.

Sincerely yours,

H. C. COE.

54 West 51st Street.

Nov. 13, 1896.

MY DEAR DR. JOHNSTONE:

I regret exceedingly not to be in a position to give you exact figures, but I think that of the patients suffering with dysmenorrhœa, about 90 per cent have pelvic lesions, and the other 10 per cent have no discernible pathological lesion. And I may add that I have found that the latter class of cases are best relieved by internal medication, in my experience. Certainly you are at liberty to use my name in print if you see fit to do so.

Cordially yours,

250 South 21st Street.

Philadelphia, Nov. 9, 1896.

MY DEAR DOCTOR:

In reply to yours of Nov. 3d, I think that not more than one-third of cases of dysmenorrhœa which I see are caused by conditions in the pelvic organs. When such are present, they are usually deficiencies in the development of the uterus, chiefly ante-flexion, with abnormal thickening and

rigidity of the cervix. By far the greater majority of cases of dysmenorrhœa which I see are neuralgic, and depend upon toxæmia and a resulting anæmia for their cause. These statements are at your disposal to publish in any form you desire.

Very truly yours,

EDWARD P. DAVIS.

Thus, you see, gentlemen, I am not entirely alone in the belief that "neuralgic" dysmenorrhœa, like "neuralgia" of the eye, is a thing of the past; and what the ophthalmoscope did for intra-ocular disease, Tait's exploratory incision has done for diseases of the pelvis. As one of my correspondents so aptly says of it, it is "merely an *asylum ignorantiae*," and it is high time it was being taken away from the students, who are already too apt to hunt out easy ways of getting rid of of tough cases.

So I will close as I began, that the immediate cause of every dysmenorrhœa is one of two things or both combined, an infection and its results or a uterine contraction. The great predisposing causes are infections and arrested development, and a possible few, as we see it in this country, of what is known as American gout.

## REVIEW OF GYNECOLOGY.

During the past ten years, while pursuing the special field of gynecologic practice, I have frequently examined women who have atrophied, shrunk, abnormally small genital organs. I do not merely refer to a portion of the organs being small as in particular cases, but to a general smallness or atrophy. The female genitals before the age of puberty are so little examined, and even so little studied, that I shall not enter into that field in this short article.

At the period of puberty there is simply a change in the genitals by which they receive a large amount of blood, they become hyperæmic and take on a rapid growth; in other words, they are highly supplied with rich blood, which means rich food. They assume a function—menstruation—which demands a high though exacerbated blood supply, and a complete delicate nerve balance. This high blood supply ushers in a new function—reproduction. Now, in its broadest sense, atrophy either means arrested growth or a shrinkage—atrophy after a natural or normal growth. In the first place, we must inquire why the organs do not normally grow in every case alike. To be short, we may say that the two chief causes are inflammatory processes and tuberculosis. Many minor ailments arise to produce atrophy, but we will make a few remarks on the two main factors.

I. Inflammation is the great and chief cause of female genital atrophy. But, it is asked, how does it come about that young girls acquire inflammation? A pertinent and perhaps instructive question would be: How does a young boy or girl acquire nasal

and laryngeal catarrh? There is some cause. Some localities furnish more subjects. The especial cause of nasal and laryngeal catarrh must lie in rapid, irregular changes of moist and cold atmosphere. The sudden changes of temperature and moisture, or degrees in the atmosphere, is accountable for congestions and decongestions of the mucosa, subject to atmosphere exposure. In other words, congestions tell the tale of respiratory catarrhs. Now in the girl who assumes womanhood—menstruation—the natural condition of the genital mucosa is periodic congestion and decongestion. The genital mucosa is quiescent but an exceedingly short time. In nasal and laryngeal catarrh, at the times of congestion the mucosa doubtless breeds and nourishes germs into an existence which did not previously exist, and this very condition feeds on itself until an abnormal and persistent catarrhal condition of the respiratory mucosa exists.

In the young girl, the periodic congestion swells the uterus both in its musculature and mucosa. The os gapes. It becomes patent, and in the congested condition of the mucosa germs in kind and quality are produced which induce catarrhal conditions of the uterus, a periodic endometritis. Also when the os is open, any germs which may be existing in the vagina may gain access to the uterus through the open os. The periodic opening of the os, the opportunities for the entrance of infective germs and stagnation of secretions, all enhance the changes for endometritis. When an endometritis is fairly established it is certain that inflammatory



conditions will spread to the muscularis of the uterus. Now begins that peculiar insidious process known as sclerosis, or the deposit of white connective tissue. This white connective tissue deposit is the result of inflammation. It progresses slowly, crushing out one structure after another, or laming them beyond function. The white connective cells are deposited between glands and it gradually crushes out their functions and finally obliterates the glands themselves. Then the connective tissue cells are deposited in the inflamed uterine walls, especially in the vascular zone, and they multiply between the muscular fibres and gradually disappear from presence. The uterine wall becomes harder and harder, and on cutting the surface it appears pale, white and glistening. The uterus has atrophied and hardened from progressive chronic inflammation. This may happen at any age of life beyond the age of puberty. The cause of atrophy of the uterus in this condition is slow, progressive chronic endometritis, followed by a slow, progressive chronic metritis, lasting over several years. I have treated personally cases of metritis lasting ten years. Chronic progressive sclerotic metritis is almost incurable. However, it may be remembered that though chronic metritis usually results in atrophy, it not infrequently results in persistent hypertrophy. Now the tubes and ovaries pass through the same condition to result in atrophy of the uterus. Again, often young women come to the clinic especially, also in the office, with one atrophied condition of the upper end of the vagina. The upper end of the vagina shares in the uterine atrophy. The vaginal vault contracts, shortens,

smooths out and often blends or glides into the os so far as to belittle the distinction between os and vaginal vault. This is due to progressive inflammation, resulting in the deposit of white connective tissue. In dissecting the atrophied uterus, or even the hypertrophied uterus, from chronic inflammation, it is plain to observe that the deposit of connective tissue is abundant in the arterial wall. In fact, the white connective tissue deposits denominate the whole genital organs in atrophy. We cannot cure such patients. It is true, douches, tampons and electricity aid, but nothing cures but removal.

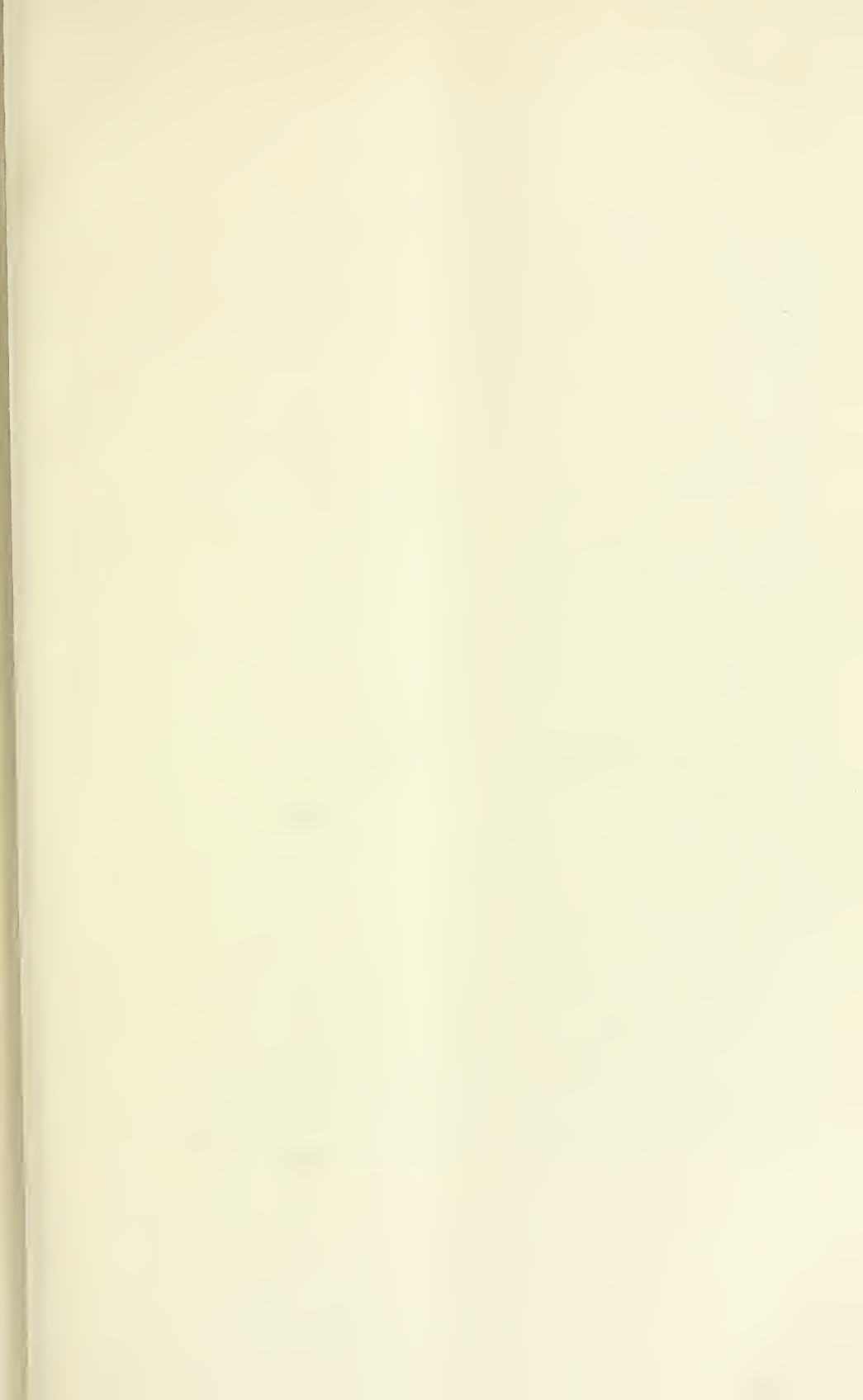
In the atrophied female genitals the menstrual function gradually ceases, becomes very scanty and accompanied by pain and considerable disturbances, both bodily and mentally. It is my opinion that dysmenorrhœa depends on a metritis. Tubercular girls frequently appear in the clinic or offices with very small regular-shaped uteri. These uteri have never become developed, they are simply small uteri, which never grew to adult size. At the menopause it is natural for the genitals to atrophy. The vulva and mons veneris lose their volume of fat. The vagina contracts, the uterus shrinks and becomes spongy and fibrous, the ovaries and tubes shrink very much. It is the natural cycle of life, the gradual disappearance of functioning organs, the slow, but partial death of the individual.

There is another form of contraction or atrophy of the vulva and vagina, called *caruncosis* of the vulva. In this disease the tissue of the vagina and vulva gradually become transformed into predominating white connective tissue. The whole vulva as-

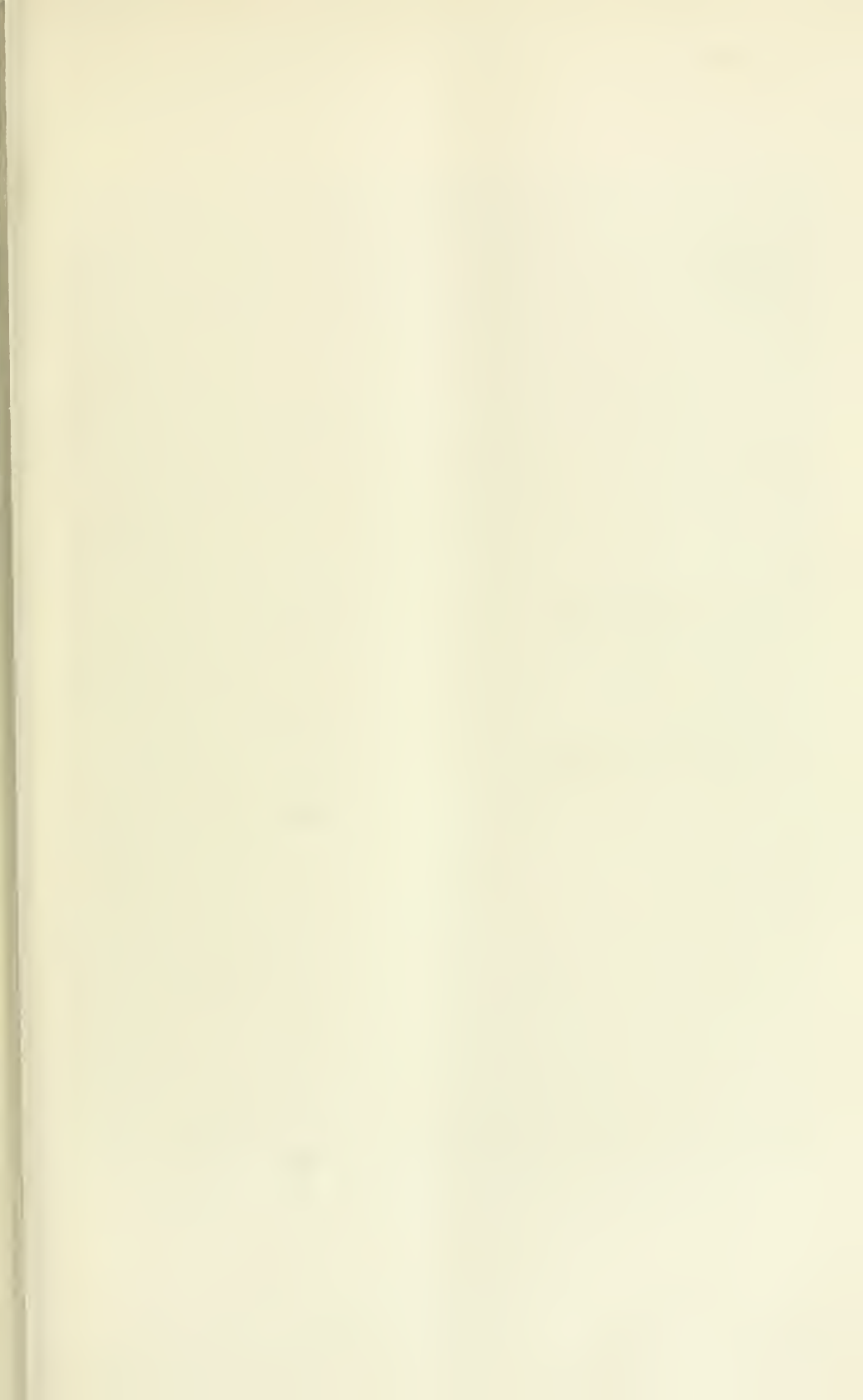


sumes a sclerotic appearance, gradually narrowing its lumen. It is these atrophied uteri which are not reproductive. The possessors, human-nature-like, because they cannot bear a child are all the more anxious to have one, and pass around from one physician to another in vain hope of gaining their object. They finally become generally disgusted with doctors. Many of these atrophic uteri are called infantile uteri by the inexperienced, and treated and treated, tinkered and tinkered with. Unfortunately the treatment becomes a tinkering sort. The endometrium is painted with iodine, curetted, or some innocent or naive physician lands electricity and dirty electrodes are introduced until a real purulent salpingitis follows six months after the electrodes have begun their infectious progress, and the last state of that woman was worse than the first. We also have genital atrophy following acute infectious diseases, as small-pox, scarlet fever and typhoid fever. Septicæmia may pro-

duce an atrophy and uterus may after septic puerperal fever undergo rapid hyperinvolution. I have frequently noted that a patient who has an atrophied uteri or an infantile uteri which debars her from child-bearing is a wretched creature and she never ceases speculating on trying new physicians, especially if she be told that she cannot have a child. I have frequently said in my experience, these patients with atrophic or infantile uteri are better off with them removed. They would be happier. But I never removed but one atrophic uteri in my life and that was a young prostitute about 18 years old. She is now well and fat. I must say in general, that we are not justified in removing atrophic or infantile uteri, as they do not distress the patient sufficient to demand it. The atrophic and infantile female genitals occupy a wide field still not yet well understood, and in which our therapeutics are quite futile and disappointing. — *Southwestern Medical Record, January, 1897.*



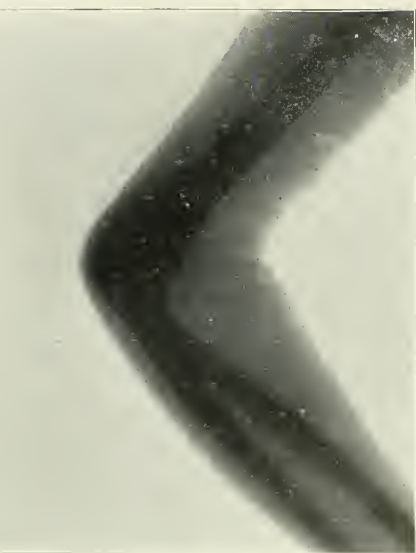












III.



IV.



V.



VI.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### THE X-RAY WITH THE NEW HOLTZ MACHINE; SOME OF ITS APPLICATIONS IN MEDICINE AND SURGERY.

GEORGE B. HENSHAW, M.D.

*Physician to Out-patients, Cambridge Hospital.*

(CONCLUDED FROM FEBRUARY ISSUE.)

THE half-tone picture on the opposite page is from a skiagraph of unusual interest for two reasons. The primary object of using the X-ray method, was to endeavor to locate the exact position of a bullet, which had entered the anterior chest wall, immediately in front of the heart, and not far from its apex, and could not be traced by probing. The bullet was fired from a thirty-two calibre revolver, at very short range. The point of entry is marked by a cross. The course of the bullet was deflected by the rib, and the picture shows clearly that the bullet finally lodged against the posterior aspect of the gladiolus, slightly to the right of the median line. There was very slight hemorrhage, and remarkably little constitutional disturbance, so no further attempt has been made to remove the bullet. The picture was

taken with the patient, a well developed youth, weighing 148 pounds, lying at full length, prone, to bring the sternum as near to the plate as possible. The skiagraph taken with the patient supine, gave no suggestion of the presence of a bullet. This was probably because the much dimmer shadow of the bullet happened to fall on the dense spinal column. The second point of interest has to do with the heart. The area of cardiac dulness was carefully marked out by percussion, and a strip of copper wire shaped to this line, and held in place by adhesive plaster. The ends of the wire were allowed to run downward and outward as far beyond the centre of apex impulse, as experience had taught the normal heart's outline actually travelled in diastole, according to the fluoroscope. The picture shows how exactly the



ends of the rim and the outer shadow of the heart coincide. This means that the heart actually expands half an inch further to the left and downward, than had been determined by former methods. A skiagraph of the heart, taken with care, with the patient prone, is sufficiently accurate for practical purposes, and as a record is more valuable, so far as the size and position of the heart is concerned, than a fluoroscopic examination. In recent literature on this subject, reference has been made to the magnification of the shadow of the heart, owing to a divergence of the X-rays, as they pass over the edge of that comparatively opaque organ. But this "distortion" cannot be marked, if the tube is placed not less than twelve inches away from the back, and opposite a spot about two inches to the left of the left transverse process of the seventh dorsal vertebra. For the distance from the edge of the heart to the sensitive plate is relatively very short, and the shortest line of the X-rays is almost, if not quite, vertical to the plane of the plate. In this bullet and heart case, this was the position of the tube. The new Holtz machine was run by an electric motor; time of exposure to the rays was twenty minutes.

One of the objections raised to this method of using the photographic plate for examining the size of the heart, has been that the shadow only represents the fullest expansion of

the heart, whereas the outline of the systole cannot be made out. For the outline of the contracted organ, the suggestion has been made that, with one hand on the pulse of the patient to serve as a guide, a metallic shutter can be arranged so that the plate would be exposed to the X-rays only when the heart is contracted, and thus a more definite picture of the systole could be made. In the same way, the movements of the diaphragm can be far more definitely recorded than heretofore.

From a purely medical point of view, chief reliance must be placed on the fluoroscopic examinations to note the conditions of the interior of organs, as for example, the detection of phthisis pulmonalis, or pneumonia, or valvular disease of the heart. For this work, the choice of the best fluoroscope is almost as important as the choice of a Crookes tube of high vacuum and good penetration. Almost all of the fluoroscopes placed on the market have been constructed with frames adapted as nearly as possible to the focus of the average eye. For this reason, many beginners have been unable to distinguish much with the fluoroscope, and have expressed considerable disappointment. The best fluoroscope should be non-phosphorescent, and should be arranged in a bellows frame, with cloth and hood to throw entirely over the head, and then the examiner can adjust the screen at the proper distance from

his own eyes to exactly suit his individual eyesight. The result will be a far greater distinctness of details of the object under examination. To shut off all unnecessary radiance, it is well to use a diaphragm of brass or lead, with a hole cut to just the desired size. This can be fastened to the outer side of the screen. The best results in an examination of the heart will be obtained when the patient is lying comfortably at full length on a canvas stretcher, with the tube placed facing upward, about a foot beneath the left side of the back, and the fluoroscopic screen is placed directly on the anterior chest wall over the heart. A remarkable degree of penetration for illuminating the trunk of the patient, has been secured by using a Crookes tube, much larger than ordinarily, and two Holtz machines in multiple arc. For a skiagraph, as well as fluoroscopic examination, the length of exposure is thus reduced more than one half. For the best results, observations with the fluoroscope should be made only in a well darkened room, and then, only after ample opportunity is given for one's eyes to become accustomed to the radiance of the screen. For this reason, such examinations are much more successful when made at night.

Many methods of "fluorography" and radiography have been suggested by experimenters, but they are too elaborate and complicated for use in

general practice. The simple methods can be readily applied with very little waste of time, and for office work, are proving satisfactory.

Individual experience alone can settle two very important points in the use of the X-ray. The distance between the tube and plate, and the time of exposure, must vary with the object to be examined, and the conditions present at the time. It is quite impossible to lay down any fixed rules. As the X-ray is a force radiant from a point, the nearer the tube is to the object, the greater will be the enlargement and perversion of the shadow. On the other hand, the further away the tube is placed, the longer must be the exposure, for the intensity of the ray decreases as the square of the distance increases. Moreover, when the machine is run by hand, the penetrating power of the ray is less than when a motor is used; hence a longer time is required to secure the same result. Generally speaking, the following would be about as definite directions as could be given for an adult case: For the hand or foot, distance between tube and plate should be from 6 to 8 inches, time of exposure, 1 to 3 minutes; for ankle, 10 to 12 inches, expose 3 to 10 minutes; for knee, 10 to 15 inches, expose 8 to 12 minutes; for arm, 8 to 10 inches, expose 2 to 10 minutes; shoulder or thigh, 12 to 15 inches, 10 to 20 minutes; for the trunk 20 to 30 inches, and expose 15

to 40 minutes. Where the part can be kept perfectly still, there is little danger of over-exposure.

ILLUSTRATIONS.—Case II. M. W., the same case as II in the first part of this article (see *ANNALS*, Vol. X, No. 5, February, 1897, opposite page 303 and page 305 for description). After operation, showing the marked improvement to the upper arm. The result is most satisfactory, and demonstrates in a most gratifying way the value of the use of the X-ray in this class of cases. Exposure, 16 minutes.

Case III. A. B., girl, twelve years of age. Fracture of olecranon process, transversely, of ulna and displacement of shaft so that coronoid process impinges on internal condyle of humerus, making flexion of the forearm impossible beyond the angle indicated in the picture.

This condition made evident only by the use of this method. Surgeons could not understand why the limited motion persisted after apparent reduction of the deformity present after the accident. Exposed 5 minutes.

IV. Same case as III, view from behind. Posterior aspect, showing amount of displacement. Exposed 6 minutes.

V. Tubercular osteomyelitis of left knee. Posterior aspect, showing extent of involvement of lower end of femur. Note outlines of soft parts, showing amount of swelling. Girl about 14 years. Exposure, 12 minutes.

VI. Hospital case, girl 5 years

old. Compound fracture of external condyle of humerus with fragment driven through skin, and dislocation of the ulna. Fragment replaced with reduction and silver wire, shown in picture, holds the piece in place. Skiagraph taken to confirm the position. Result most excellent, as patient has almost perfect use of her forearm. Picture taken some time after operation; wire to remain in place. Exposure about five minutes.



CASE VII. Fracture of Fifth Metatarsal near its proximal end. Could not be detected by any other method. Localized pain and swelling, but no crepitus.

The half-tone reproductions of the skiagraphs of the cases illustrated in this article do not do justice to the original plates. I trust that due allowance will be made for this fact by the reader.

In conclusion I would state that nine months' experience with this method and the examinations of a large number of cases has convinced

me that the X-ray is an indispensable assistant to the physician and surgeon.

2 Mt. Auburn St.,  
Cambridge, Mass.

## EARACHE IN CHILDREN: ITS RELATION TO ADENOID DISEASE.

EDMUND B. SPEAR, M.D.

*Late Aural Surgeon to Out-patients, Boston City Hospital, and Massachusetts Charitable Eye and Ear Infirmary.*

IN writing upon a somewhat trite subject, and again directing attention to matters which ought to be almost self-evident because of their popularity, I intend to make a plea in behalf of those whose claims upon us are deserving of instant recognition for many reasons.

It has been truly said that pain leaves no memory of its presence. Few of us can forget, however, that we have suffered pain. Perhaps it is because of the associated ideas that we are able to recall with greatest distinctness the painful trials of childhood. Commonest among these memories are those that conjure up sweet-smelling herbs, warm poultices, and the flannel bandages which usually go with that mysterious something called earache. "Nothing but an earache," replies the parent, when questioned as to his own or his children's experiences.

We have learned to regard lightly even that which has more or less of mystery about it, because of familiari-

ty with it. There is no doubt but that custom causes us to look upon a case of earache as a matter of trifling importance. This familiarity is akin to that ignorance which finds us every day pursuing our customary functions almost in touch with great unrevealed truths, and yet oftentimes passing them unnoticed, because of this same familiarity with them.

Were it very easy to see the aching ear and detect its throbbing pulses and its tender nerves, one might not be willing to give a passing glance or a careless nod as he suggests the familiar *placebo*. "A hole with a pain at the bottom of it," fittingly expresses the popular idea of the disease. Into this unexplored opening is poured, in obedience to this crude reasoning, the mixture least suited for relief, but best calculated to obstruct its delicate interior.

Before writing of means, we shall first consider the causes which usually bring about the disease, of which earache is the symptom.



I can assert, without fear of contradiction, that all ear cases are primarily nose cases, or more precisely, every disease of the ear is dependent in some way upon disease in the adjacent structures. Confining this study to those parts which are most concerned with acute inflammation of the middle ear, and emphasizing the important role which such diseases of the nasal chambers and naso-pharynx play in its production, we shall describe, in a general way, this disease of the ear, and then the diseases of the nose.

The first, or congestive stage, causes the membrane to look red around its borders and across the site of the long process of the malleus. Later, there is redness of the whole membrane, which becomes swollen and bulging. These changes take place very rapidly in some cases, but are slow and tedious in ears which have had many previous attacks of inflammation. The swelling finally gives way by ulceration to perforation, and relief is usually experienced with the discharge of fluid.

All young patients suffering from acute inflammation of the tympanum have hyperplasia of the pharyngeal tonsil, or adenoids. This fact cannot be gainsaid or confuted. Cases occur where the quantity of this adenoid tissue is inconsiderable, but the location of it near the Eustachian tube, and its peculiar erectile properties, explain its evil power. The symptoms which most markedly present the conditions found in the child whose naso-

pharynx is filled with an excessive amount of adenoid tissue are principally objective. The typical points are the facial appearance and the breathing habits of the individual. The child usually breathes with its mouth open. The breathing, especially at night, is labored and distressed. The results of this mouth breathing are evident in the pinched look given the face, while the obstructed nose causes an imperfect growth in the facial bones (as pointed out by Meyer and Ziem), which is shown by the high-arched palate and the narrowed upper jaw, with the crowding together of the teeth in consequence of the faulty nutrition, induced by imperfect circulation.

A far more important symptom of chronic nasal obstruction, due to adenoids, though often attributed to enlarged faucial tonsils, is a contracted thorax which produces the so-called pigeon breast, and which, later in life, is often found to accompany tuberculosis, and varieties of catarrhal pneumonia, which end in phthisis.

This deformity is mechanically produced from a lack of air in the upper thorax, and an undeveloped condition of its walls, consequent upon a feeble expansion of the lungs.

Reference is made to this feature of adenoid disease in connection with acute inflammation of the middle ear, because of its direct bearing upon treatment, as well as for the purpose it serves in diagnosis. Moreover, there is nothing that appeals to the parents

of a child more than a deformity, and especially one so noticeable as this. Many parents neglect their children's ears, even when they have had numerous occasions to take notice of them throughout the sleepless nights in which the little sufferers have groaned with their aching heads.

Reviewing the symptoms which indicate an acute inflammation of the tympanum, we find in an ill-nourished subject usually, though this is by no means the rule, and at the height of the disease, a flushed countenance, attended with a weak and very rapid pulse. During intervals of relief from pain, which, as before stated, is very severe, and of a piercing character, an unusual pallor of countenance, with a wearied expression of the face, supervenes. Few writers attempt to describe the vaso-motor disturbances of middle ear affections, but their severity is in many instances a cause for alarm.

In addition to marked objective signs, a distressing tinnitus of a pulsating type, autophony with great deafness, which may, however, not be noticed, except when one ear remains unaffected, are present. In the later stages of inflammation, the drum membrane ruptures, and a serous discharge becoming muco-purulent, takes place, and appears at the external meatus.

Convalescence from attacks of earache is frequently very slow, and relapses very common, and occasionally much more serious than the primary

affection. That these conditions obtain when the cause is supposed to have been reached, is evident upon a study of the underlying causes above described.

It is usually supposed that a child has simply taken "cold," but a severe inflammatory process is allowed to go on unchecked until the catarrhal symptoms have advanced beyond the congested stage and as no efforts are made to clear the nose or open the nasal chambers, which might relieve the stasis about the Eustachian tube, the disease advances upward and invades the ear.

In very young children who have not learned to blow the nose, nature tries to relieve the congestion by reflex acts, as those of sneezing or coughing, but these are insufficient in most cases, and art must assist nature. It should be remembered, when taking the history of ear cases, that all the reflex acts connected with the upper air passages, such as those just referred to, can be induced by diseases within the nose.

A few words upon preventive measures ought to precede the consideration of the treatment of acute inflammation of the middle ear.

In some sections of the civilized world, writers calling attention to the underlying causes of catarrhal diseases of the upper air passages, point to the experiences of the first weeks of life as worthy of even more attention than we are supposed to give to them.

In our worthy efforts to promote

the physical welfare of the race, and satisfy the demands of an advanced civilization, it is certain that we are going beyond the limits of what is wise and prudent, and subjecting our offspring to unnecessary trials. Recalling the facts that climatic conditions vary in different countries, and that hereditary influences obtain everywhere, it remains that the more we protect and foster the tender youth, the more frail and sensitive he becomes, and that unless allowed natural surroundings, he wilts and degenerates, as tropical plants do when exposed in temperate regions.

And yet, while thinking that they are affording due protection, and at the same time furnishing a means of hardening or acclimating the young infant, the majority of parents insist from the first hours of life that it should be alternately exposed and over-heated, while often over-supplied with an unnatural diet. Space does not permit more than a suggestion upon these matters; namely, less bathing and less feeding for all young children, with opportunity to breathe the outside air daily. "The new-born child ought in all instances, even though vigorous and healthy to all appearances, to be kept from the bath for at least forty-eight hours." This first bath should be an oil or vaseline one too, and water reserved for a later day, when the skin is dried and hardened to resist its action.

The treatment of earache itself is very simple, and consists in relieving

the congestion and increased tension within the tympanum. In uncomplicated cases, it suffices to carry a cotton-tipped probe saturated with a weak solution of cocaine hydrochlorate through the nose into the nasopharynx. This procedure is sometimes difficult on account of the struggles of the child, but by having the arms firmly held by nurse or parent, the physician can steady the head with one hand, while he works with the other. After the nose has been treated, it must be vigorously blown; one nostril at a time receiving attention until no more mucous can be ejected. In infants, and with those whose nasal respiration is much obstructed, the cotton-tipped probe can be employed to clear the nasal passages in complicated cases.

The serous discharge occurring in the second stage of the disease should not cause alarm, and the only proper treatment of the ear is careful removal of the macerated epithelial masses with an aural syringe and sterilized warm water. Inspection of the meatus and mastoid, with occasional digital pressure, will allow the physician to decide early as to the necessity of operative interference, and any noticeable swelling or tenderness on pressure should be promptly combated.

These local measures must be repeatedly persisted in for several days, and upon the subsidence of the acute swelling and congestion, thorough exploration of the post-nasal space

should be made with the finger, previously sterilized by immersing in alcohol.

If adenoid tissue is found to be present, it would seem the part of wisdom to advise the parents to seek the services of a specialist. This digital

examination can even be dispensed with if there are confirmatory signs present: the high arching palate, narrow upper jaw, pigeon-breast, or even more or less persistent mouth breathing.

20 Mt. Vernon St.

## PROCEEDINGS OF THE PHILADELPHIA PEDIATRIC SOCIETY.

MARCH 9, 1897.

J. P. CROZER GRIFFITH, M.D., PRESIDENT.

DR. D. J. MILTON MULLER read a paper on "Hyperpyrexia as a Fatal Termination in Enterocolitis," with remarks on "The Use of Opium in this Allied Affection."

The basis of the paper consisted in the history of two cases of mild catarrhal enterocolitis, which, after running a mild course for five or six days, suddenly developed excessive temperatures ( $105\frac{1}{2}$  degrees F. in one,  $107\frac{1}{2}$  degrees F. in the other), combined with cold extremities, and great restlessness, but without vomiting or serous discharge—the diarrhoea on the contrary, which had consisted of five or six stools daily, ceasing with the onset of the fatal symptoms. Both cases, notwithstanding the use of calomel, copious irrigations of the colon and repeated cooled baths, showed increasing temperatures (109 degrees F.) up to the time of death, which occurred within 48 hours after the appearance of the hyperpyrexia. In both patients, who were not seen by

the writer until after the onset of the unfavorable symptoms, opium, combined with other remedies, had been administered, in one case up to 25 drops every two hours. The milk diet had also been continued by the attendants, although in one of the patients it had been substituted for beef-juice and farinaceous water after three or four days' illness. But although it was discontinued, no efforts to secure its removal from the intestinal canal were made, as it was present in the irrigations given by the writer; while to both infants opium was administered after the restlessness and hyperpyrexia had developed. These facts would seem to warrant the conclusion that the untoward results were due to arrested peristalsis and consequent confinement within the intestinal canal of masses of fermenting food from which poisons (tyrotoxin) were absorbed, producing the profound toxic symptoms from which these infants evidently suf-



ferred. That these were not cases of genuine cholera infantum, which, as is well known, is so apt to be engrafted upon a mild dyspeptic diarrhœa or sub-acute ileo-colitis, is shown by the absence of the characteristic purging and vomiting. Nor were the toxic symptoms due to the action of opium directly, since they did not present any evidences of excessive doses of that drug; there was no stupor, no drowsiness and the pupils were not excessively contracted. Whether or not the exhibition of opium was the indirect cause of the fatal result in these cases, it may not be out of place to call attention again to the well-known fact that, in the diarrhœal affections of infancy, particularly in summer, opiates should be given with extreme caution. As a rule the diarrhœa in these cases is conservative—an effort of nature to get rid of materials to which the fever and other symptoms are due. Opium arrests peristalsis and prevents elimination, and may give rise to grave symptoms of intoxication. In the acute dyspeptic diarrhœa it is rarely necessary. A preliminary dose of oil or calomel, the cutting off of fermentable food, or the absolute interdiction of all food for 12 or 24 hours, and the exhibition of bismuth in large doses, after the bowels have been thoroughly cleansed by irrigation and cathartics, is all that is usually necessary to effect a cure. In the graver cases the rule to withhold opium until the stomach and bowels

have been thoroughly emptied by lavage, irrigation and cathartics, is still more imperative. The chief indication for the use of opium is pain, particularly acute colicky pain and tenesmus, and profuse watery movements. When these conditions are absent, its administration may be dispensed with. It should especially be avoided when the temperature is high or shows a tendency to rise, when the fecal movements are offensive, and when nervous symptoms begin to manifest themselves, particularly if these symptoms supervene soon after its administration. In ileo-colitis and colitis, the seat of disease being low down, treatment by irrigation is more effective than the administration of drugs by mouth, the tenesmus being relieved by laudanum and starch injections. During infancy, opium should always be given continuously in small doses and separately, never in combination with other remedies. Its effects can then be watched and it can be withdrawn without discontinuing the other medicines. The dose, owing to the extreme susceptibility of infants to the effects of opium, should be not more than  $2\frac{1}{2}$  to 5 m. of paregoric or  $\frac{1}{4}$  m. of the tinctures or 1-6 to 1 gr. of Dover's powder every three or four hours. Children under six months may take half these doses, while in those under six weeks, it is questionable whether its administration is ever advisable, 1-24 m. being a sufficient dose.

DR. WILLIAM PEPPER.—I enjoyed

the paper very much and find myself in entire accord with the writer in regard to the process, which I think he has so judiciously stated. I think that both the author of the paper and you, sir, are very right in speaking of this as a most important question. I do not think there can be found a more important, practical question. This type of case is so very common and the demand for relief is so urgent, that it has become a routine practice to administer opium in some form in these conditions; indeed we often find that it has been done by non-medical persons before we arrive at the bedside of the little patient. It seems to me by no means a simple question. I have thought so much about entero-colitis, it seems to me that these points are certainly clearly made about it: In the first place, that the existence of entero-colitis is by no means to be measured by the degree nor positive existence by the amount of discharges, and that there may be a very wide-spread irritation of the mucous membrane, perhaps not so much of the epithelial layers as of the follicles and of the nervous filaments of the intestines without the existence of copious or frequent discharges, so we are not to estimate the gravity by the copiousness, frequency or character of the discharges. Undoubtedly when the various lesions are combined or when there is a great deal of blood in the discharges it does indicate a serious grade of inflammation, but that entero-colitis may exist

in a high degree with comparatively little discharge I think is demonstrable. Secondly, I think that we must realize that the sources of danger here, as elsewhere, are manifold. I believe Dr. Miller has been, absolutely right in calling attention to the frequent and potent influence of intestinal intoxication in the production of fever in these affections, and undoubtedly in the cases of this type there could be nothing more likely to aggravate the fever than to load the intestine with highly fermentable matter, forming an admirable medium for bacteria, and then to lock up the intestines so as to prevent the discharge of the offending materials. In that case we have the typical condition for the production by progressive hyperpyrexia by progressive poisoning resulting from auto-infection. Thirdly, it seems to me quite clear that there are cases here as elsewhere where the hyperpyrexia is dependent upon the inhibitory action of the intense peripheral irritation upon the heat-controlling centre, and that the paresis of these centres with the resulting hyperpyrexia is quite explicable as the effect of the widespread irritation of the nerve filaments of the mucous membrane, whether or not there be at the same time decomposing intestinal contents and consequent poisoning.

These simple conditions which are, of course, perfectly familiar to you all, have seemed to me to offer a simple guide as to the use of opium

and as to the mode of dealing with hyperprexia. I am sure it has happened to you all, as it has often happened to me, to be called to a child, just as Dr. Miller describes, and learn the history of high nervous disturbance, very possibly a convulsion and in the interval stupor with gritting of the teeth, with spasmodic conditions of the extremities; to learn that there have not been many discharges, but that these discharges have been mucous, perhaps blood-stained; to find rectal temperature high, the nose cold and the temperature 107 degrees F.; and I have frequently found the cold bath in such cases followed by the rapid reduction of temperature, the subsidence of nervous symptoms and such rapid control of intestinal symptoms as seemed scarcely conceivable with the grave condition from which the child had so recently emerged. I can see no other way of explaining such cases, because I have met with them where there were no evidences of impropriety in feeding nor the retention of a large amount of fermenting matter; I have not been able to explain these cases otherwise than by a widespread intense irritability of the intestinal nervous filaments in a susceptible child, with ill-governed temperature, probably with weak and sensitive nerve centres and the easy paresis of inhibitory centres, and thus the increased development of high temperature without the evidence of such grave local lesions as are commonly met with in

severe entero-colitis. It seems to me that in such a case opium would probably be fatal; I will not say fatal, but it will contribute to the fatal result. Believing that these grave symptoms of hyperpyrexia were the result of entero-colitis as we commonly use that term, should we therefore apply the routine treatment of astringents and opiates against this hypothetical entero-colitis, I think we would further depress the nervous centres which are already in paresis, and I believe we would hasten the fatal result. I note that among the cases which have been reported in the very valuable, interesting and suggestive paper read to us, one of them seems to me a case of that kind. If a case of that kind is further aggravated by wrong feeding, and the gastro-intestinal canal becomes clogged with putrescent, poisoning matter, increasing irritation and furnishing steady progressive doses of infection, and if we deliberately lock up that mass by paralyzing peristalsis, I do not think it is too much to speak of opium as a fatal agent in such cases.

I think, on the other hand, we meet with cases where the story is very different, where there are evidences of much more marked local irritation, much more active discharges; where the danger is of exhaustion from these discharges or alterations in the blood volume. I would not doubt for a moment that auto-infection to a certain extent occurs. It seems more likely, however, that such symptoms



are produced by the sudden dehydræmia, than in cases of the other type. In these cases it has seemed to me that opium has a valuable place, that a greatly restricted diet is useful, that applications of a slightly stimulant character to the periphery are useful. I agree entirely with Dr. Miller in the way in which the temperature should be treated. It has seemed to me that enemata of small doses of opium, in very small bulk, in some very soothing menstruum, were of the greatest possible service, and I think I have seen by allaying of local irritation a gratifying reduction of temperature without resorting to the cold bath or resorting to any antipyretics.

Are not the subjects of enterocolitis too broad to be brought under a single dictum? Do we not have to recognize, as we do in any one of the great symptoms we are called upon to study, different expressions which looked upon superficially appear the same, but studied philosophically prove to have a different basis, different pathology and explanation and to admit of a different treatment? I think the author of the paper has done us all good by calling attention to the excessive danger of the routine use of opium in these bowel affections of children, by calling attention to the proper treatment of hyperpyrexia, at least in a certain proportion of cases, from a wholly different standpoint than the rule of treating vigorously the intestinal symptoms,

and the only thought that I would add to the matter is to suggest that a group of cases of entero-colitis exists, of rather different symptoms from those which have been narrated in the two or three cases, in which opium, especially if used by rectum, applied directly to the seat of chief irritation, where it does not so strongly interfere with primary digestion, nor with peristalsis in the upper bowel (where I take it occurs the damage from giving opium and the greatest danger of auto-infection is induced), in conjunction with allied measures, does find a good, and I might say a necessary place, in dealing with these cases.

DR. GITHENS.—I regret to say that I heard only the closing sentences of D. Miller's paper. There is one class of cases of entero-colitis in which I have used opium successfully by the mouth, those in which the temperature of the patient is not so high, but in which the diarrhœa is the result of outside high temperature, the result of keeping the baby too warm either in winter or summer. A catarrh of the bowel results, there are passages of green slime, the milk passing down in white curds, not a particle of decomposition, not a particle of auto-intoxication or poisoning. In these cases I have used paregoric associated with castor oil so as not to check too quickly the discharges, but to have an effect on the diarrhœa through the nervous system.

My idea is that the heat irritates



the nervous system and the opium acts as a soothing agent, and that without checking the bulk of passages I check their frequency and cause the food to pass more slowly.

Now as the passages contain curds of milk, they show that the peristaltic action of the bowel is too rapid to allow time for digestion; sometimes I have given coloring matters to show how quickly they pass from the mouth to the rectum, and found it to be sometimes in three, sometimes in six hours. By this mode of treatment normal action of the bowel is restored without binding or constipating in any way; the passages grow gradually larger, less frequent and they soon regain their orange color. I use opium in comparatively large doses: for instance, in a two-ounce mixture I will combine a drachm of castor oil and two drachms of paregoric, and to a child of from seven months to one year old, I will give a teaspoonful of the mixture every hour.

Now there is another variety of cases where the dejecta are offensive, profuse and watery. In this class I would not think of giving opium; its use brings on a cyanotic condition of skin; the eyes remain open when the child goes to sleep and evidently an auto-intoxication of a very high grade exists. In these cases the temperature rises much higher, and I suppose they are the ones which come more directly under consideration in Dr. Miller's paper. In these, no undigested food passes down through the

intestines; the alvine discharges seem to be a direct drain from the blood vessels, due to a paralysis of the vasomotor centres.

DR. PRENDERGAST.—I did not hear the first part of the paper and for that reason I cannot speak of it in detail. What strikes me as being peculiar is the effect of summer temperatures upon children from season to season. Some seasons I have gone through in which I would not see a single case of what we call true cholera infantum. Three years ago I had three cases, every case being fatal inside of 24 hours; one child was taken at 10 in the evening. I saw it at 7 in the morning, and the child then was in a state of collapse; there had been profuse vomiting and diarrhoea. As there was no chance whatever of giving drugs by the mouth, I injected hypodermically atropine and morphine, but before the drugs had a chance to act the child died.

Within that week there were two others similar cases. One day I was going along the streets of West Philadelphia and noticed one of my patients in an infant's carriage; the child was about six or seven months of age; the mother did not seem to be at all alarmed about the child and it was not apparently in a bad condition. She simply told me it had not been as well as usual. Inside of six hours it went into a state of collapse and died. Then within 24 hours I had another case; the atmospheric temperature was not very high and did not

compare with the heat of the past summer, during which time I did not have a case of cholera infantum.

As for the use of opium in these cases, it is rather a delicate matter to handle. A person has to be extremely cautious in its use, and also he has to use his judgment and select cases for his opium treatment. For the past two years I have had a tablet triturate made by two manufacturers of paregoric with salol, minute doses of calomel and salicylate of bismuth, made sweet so I could feed it to the child the same as a confection. I have had better success with them than anything I have tried. I carry them in an emergency or pocket case, hand to the mother and say, feed to child every hour or so, generally with very good results. The great trouble is to convince the parents that you are not trying to starve the child to death; another great difficulty has been to get the mothers to give children a drink of water. You cannot convince them that a child ought to have water; if the child cries they immediately get a good big bottle of milk and probably feed it about six or eight ounces of milk that has been exposed to all kinds of germ-laden atmospheres. This quiets it for the time being, but is only adding to the child's misery. I generally tell the mother to boil water, put it in the refrigerator and allow to cool and give the child all the water it can drink. I find it is of great benefit to

them and it relieves the demand for food.

I had a case last summer, to me a case rather interesting, which got well in spite of me, I think. The child had been suffering with sub-acute entero-colitis, having green stools and vomiting once in a while. I think I tried every baby food in the market. I tried sterilized milk and milk in all forms, all kinds of milk food; after 24 or 48 hours the child would always come back to its old condition, vomiting and diarrhoea. One day I happened to be in the neighborhood and stepped in to see the child. It seemed brighter, and I asked the mother what she had been giving it. She said: "Doctor, last night we had some beer in the house and we were drinking it and the child happened to see it and wanted some, and it took half a glass and the beer stayed down." I said: "All right, that will do, suppose you get a good imported ale, put the child on that for a few weeks." To my surprise and astonishment the child began to thrive at once and I kept it upon that for two weeks' time, and after that was able to feed the child. I thought if the ordinary beer would agree with the child that the other would, and at the present time the child is very healthy and vigorous. It seemed to be the turning-point of the tide. To my mind, true cholera infantum is a form of heat stroke, and we shall have much better results if we treat it as

such; that is, by cold bathing when the temperature is high, and by stimulating freely when there is heat exhaustion.

DR. W. REYNOLDS WILSON.—It seems to me in discussing these questions, it is largely a question of resources of treatment. I think if we consider the length of time such a case wears out, the necessity to change treatment in order to meet your own ideas of the case and in order to satisfy the mother, there is a great temptation to use opium. Two cases occurred to my mind when I had some dealings with summer practice at the seashore. I had one case with copious discharges in which I used small doses of the extract of opium in combination with creolin as a suppository. It seemed a very rational treatment and was very effective in the case. There were, to be sure, no contra-indications towards its use. The creolin of course acts locally as an anti-fermentative, and the opium in moderate doses also acts as a sedative. We obviate in this way the great difficulty and inconvenience of combining the opium with other drugs, as Dr. Miller mentioned.

The first case I referred to was a child seven months of age, to which I gave one-tenth of a grain of extract of opium in combination with one minim of creolin. I had another such case in which I resorted to the same treatment with the same practical experience. I only offer this as it occurred to me and without, of course,

announcing any dictum in the matter.

DR. A. A. ESHNER.—There seem to me to be two points worthy of special emphasis in addition to the caution recommended in the employment of opium in cases like those reported. One of these consists in irrigation of the lower bowel to as large an extent as possible either with water at low temperature if there be pyrexia, or with water of a higher temperature if there be depression. To the water may be added non-toxic antiseptics such as boric acid, menthol, sodium biborate, sodium bicarbonate and the like in accordance with the indications present in the individual case. The other point is the abstinence from foods susceptible of fermentation in the gastro-intestinal tract, and possibly from all food for a short time. It is perfectly well known that infants, as well as adults, may go for many hours without ordinary food, oftentimes with advantage. They must then receive sterile water, or albumin water, or barley water, or other bland preparation at stated intervals.

DR. MILLER.—I have only to say that I am fully in accord with what Dr. Pepper has said in regard to the various origins of hyperpyrexias in these cases; still my own belief is that most of these cases are due to infection from the food, and that the proper treatment, as Dr. Eshner has said, is to thoroughly empty the stomach and bowel and shut off fermentable food, and then if opium is given, to



give it in very small doses. I have seen quite a number of these cases, and that is my routine treatment and I have been very fortunate with them. A child can go without milk in its food for weeks, as I know very well in a case I have treated.

In the case I refer to the child went for five weeks without milk touching its lips, only egg albumin and beef-juice and recovered entirely and is now a robust, strong boy. The child got very little opium. In this case the patient was taken ill with entero-colitis after an initial purging and the case at first was extremely mild; it was more of a dyspeptic diarrhœa. Opium was given in drop doses, the child being fifteen months old, at intervals of three hours; the diarrhœa ceased and milk was taken again, when it entered upon the second phase of its illness, which lasted almost three months, afterward recovering entirely. In all these cases I practice irrigation largely; twice a day three to four pints of boiled water are allowed to run in and out freely. I agree that opium is necessary when there is pain and when there are serous and watery movements; when the movements are not many in number and when there is no pain, I believe it is unnecessary and should be dispensed with as it is likely occasionally to cause dangerous symptoms.

DR. PRENDERGAST.—I would like to ask Dr. Miller if he has used tannin in his cases.

DR. MILLER.—I have used tanni-

gen in the case which lasted so long and which Dr. Griffith saw with me; it ran into the chronic state and tannin was the only drug which seemed to stop the diarrhœa. In two or three acute cases I have tried it, but I have had no result. In another case similar to the first it stopped the diarrhœa in doses of four grains every three hours.

DR. PRENDERGAST.—I started in last summer using tannin and in some cases, possibly twelve, it acted very well. I had it made up in tablets of sweet chocolate at first, and I want to caution the members of this society not to have it put up in this way; for some reason it develops an intense bitter in combination with chocolate. I found the best way is to take it plain or with a little sugar. I think the majority of my cases did very well upon tannin in that way last summer. The other day I had a case with some vomiting and diarrhœa, and in 24 hours under tannin there was a decided change, and I think it is going to be a valuable addition to therapeutics in a certain class of cases.

DR. J. MILTON MILLER exhibited a water-color of a case of pertussis and said: Some weeks ago a child was brought to the Children's Hospital with whooping-cough, with extensive hemorrhage into the conjunctiva and tissues about the eye. The whole of the white of the eye was involved so as not to be seen at all. The conjunctiva was ecchymotic and the iris depressed. The uncle of the child be-



ing somewhat of an artist, I had him make this sketch which very faithfully represents the condition of the child. A rather curious phase of it was that the child did not have very many paroxysms although they were excessively severe. She did not bleed into the mouth or nose, nor did she vomit; simply had hemorrhage into the conjunctiva. The disease yielded readily to antipyrin, so at the last visit the child had only one paroxysm in 24 hours, after having had about eight or ten. It is rather unusual to see such extensive hemorrhage as seen in this case.

DR. J. P. C. GRIFFITH.—I have never before seen such an extensive hemorrhage myself in the conjunctiva; and as Dr. Miller says, it was not a very severe attack of whooping-cough, as I noticed on seeing the child in the hospital.

DR. S. H. HAMILL read a paper on glandular fever.

After a brief abstract of Pfeiffer's original article and a general review of the literature, he gave a description of the disease based upon the communications to the literature. He described the condition as an acute infectious disease of sudden onset and short duration, developing in children, without premonitory signs, and attended by mild fauceal redness, constipation, moderately high fever, rapid swelling and great tenderness of the cervical lymph-glands lying beneath and posterior to the upper third of the sterno-cleido-mastoid muscle,

which subside gradually and completely in from two to three weeks. Von Starek and Sejoumet considered the condition due to an auto-infection dependent upon chronic constipation. The disease is limited in its occurrence almost entirely to infancy and childhood, but three cases having been reported in adults. Boys are more commonly affected than girls. The disease is more prevalent during the months in which the diseases of the upper air-passages occur. The bacteriological examinations have been few and incomplete, and consequently but little light has been thrown upon the nature of the infection. In seven of Neumann's suppurative cases bacteriologic examination of the pus revealed the presence of the streptococcus pyogenes, five times alone and twice associated with the staphylococcus albus. Desplats observed one case with pseudo-membranous angina of streptococcal origin and in the case reported in connection with the paper streptococci and staphylococci were found associated. Comby and Goulichon, basing their opinions chiefly upon the results of Neumann's investigations, consider the streptococcus responsible. Czajkowski found the bacillus of influenza in all of his cases. His findings have never been confirmed, and as his cases occurred during an influenza epidemic this demonstration was considered coincidental. The nature of the infection is undecided. Dr. Hamill suggested a careful examination of the blood and

tissues owing to a certain analogy between this condition and bubonic plague. In the absence of any discoverable local lesions, he considers it probable that the micro-organism penetrates the mucous membrane without creating any lesion at the port of entry—a process, the possibility of which has been fully proven. The onset of the disease is sudden, sometimes being preceded by a chill. There is vomiting; the bowels are constipated; the temperature is elevated, sometimes to 105 degrees; the head is held fixed, sometimes in the position of torticollis; swallowing and movement of the head give rise to pain; on the first or second day there develops rapidly increasing swelling of one or several of the lymph-glands lying beneath or posterior to the upper third of the sterno-cleido-mastoid muscle. This occurs first on one side and, in the majority of cases, on the second or third day on the other. All the lymph-glands in the circumference of the neck may become secondarily involved, as well as the retro-pharyngeal, retro-esophageal, retro-tracheal, bronchial and mesenteric glands. The liver and spleen are very frequently enlarged. The fever in very mild cases subsides on the second day. It usually subsides by lysis and subnormal temperature, accompanied by profuse sweating, and decided pallor exists for some days. Exposure sometimes gives rise to recurrences. The glandular enlargement begins to subside on the fall of

the temperature and usually disappears entirely in from two to three weeks. The usual duration of the disease is from 9 to 27 days. Dr. Hamill suggested a careful inspection of the skin, the teeth and all available mucous membranes in order to be sure that there is no known port of entrance for the infection. The conditions with which glandular fever is likely to be confounded are simple acute adenitis, irregular forms of parotitis and the symptomatic adenitis, especially that accompanying the non-eruptive cases of scarlatina. Hemorrhagic nephritis is the most common and serious complication. It usually occurs very early. The prognosis is favorable, but two deaths having been recorded. He reported a very interesting case occurring in a boy of two years.

DR. DAVID RIESMANN.—The speaker has so ably covered the whole subject and has gone into the literature so completely that I cannot add anything, I fear, of importance. One case that I have seen I did not recognize as glandular fever at the time; a little child with enlarged glands at the angle of the jaw, very large, tender, considerable fever and no throat symptoms whatever. I considered it lymphangitis and reported it as that in my monthly report of the dispensary, and only later did it occur to me that this was a case of glandular fever. The disease is undoubtedly infectious, the points in favor of this view being its epidemic character, the

acute onset, the occurrence of Bright's disease and at times a decline by crisis. Just where the poison enters is difficult to state, but some investigators state that germs can enter through an apparently healthy mucous membrane in tuberculous enlargement of glands; in fact one observer says that glandular enlargement of the mesenteric glands alone is possible. The connection between this disease and the plague, as brought out by Dr. Hamill is very interesting; I doubt, however, whether the germs are at all related. The occurrence of nephritis in this disease I think is most interesting, as in many mild diseases, like chicken-pox. The case which Dr. Hamill reports is interesting because of scarlet fever in the family. Four weeks ago I saw a child with scarlet fever; on Thursday it was taken ill with typical diphtheria; on the following day typical scarlet fever rash developed. It had a pseudo-membrane, but in view of scarlet fever we thought probably there was streptococcic infection. A few days later a sister was taken ill with scarlet fever,—a few days later the mother of the child, a woman in the prime of life complained of pain in the back and felt quite ill; the urine diminished and contained albumen and one cast, but no eruption existed except on the backs of the hands which desquamated and only careful examination upon the part of the doctor discovered that. Evidently it was the poison of scarlet fever that caused

her Bright's disease. The streptococcus has been suggested as the cause of glandular fever, but it need not be the same streptococcus as in pus. It has recently been shown that the anti-streptococcic serum prepared from pyogenic serum has no effect upon the streptococcus of scarlet fever, and while we have always held that the streptococci are of an individual type, it may be after all that there are different kinds of streptococci.

Dr. A. F. ROUSSELL.—I have been specially interested in Dr. Hamill's paper for the reason that I have seen four cases which in the main bore close connection to the subject. In looking over the different reports of the cases thus far, it has seemed to me that a great many other cases than those described by Pfeiffer have been included in the description of this disease; for example, in the cases reported by Neumann, some 13 out of 27 suppurated and necessitated free incision; then, again, in Mosson's cases, the glands of neck are but slightly enlarged, there is dulness on percussion over different portions of chest, together with respiratory changes, which, with the rather prolonged duration of the cases, lasting over two weeks' time, would seem to point to the possibility of a catarrhal pneumonia; then the second group of cases lasting for a period of three weeks with supposedly enlarged abdominal glands, with diarrhoea, with little or no involvement of the glands of the neck, certainly can very well be ascribed to



other causes rather than a new and infectious trouble. The same may be said to be true to a certain extent of the cases of nephritis in Heubner's list; in one of the French journals we find that the symptoms of nephritis manifested themselves as early as the first 36 hours of the fever, that the amount of albumen, specific gravity, abundance of casts, together with the slight glandular enlargement might well be ascribed to the existence of acute diffuse nephritis from possibly other exciting causes. It is possible that in the description of a new disease, as this is supposed to be, a certain amount of confusion must necessarily attend the description by different writers for the reason that the lines are not laid down fast and distinct, but in the main the points so ably brought forth by Dr. Hamill, the enlargement of the post-cervical glands behind the sterno-cleido muscle, the amount of fever, the uniform congestion, hardly an inflammation, of the throat rather more marked at one tonsil, which is supposed to be the seat of origin of the infecting material, the fact that other authors have reported the existence of one or more cases of same disease in same family, the probabilities are that we are dealing with a previously unrecognized condition.

I have reported in the *Medical Bulletin* four cases which should be classified as belonging to this group. They occurred in January, in the western part of city; the first was a girl five years old, suddenly taken ill with

vomiting and comparatively high fever, but the temperature at no time exhibited a higher marking than 102 2-5 degrees; with this there was coated tongue with red tips and edges, rapid pulse, little abdominal tenderness; at the same time as the onset of the fever the glands on that side were quite markedly involved. On the succeeding day the younger brother, three years of age, exhibited much the same symptoms. The duration of the attack was in one instance ten days and in the other eight days, after which the fever subsided and both patients entered into a rather slow and tedious convalescence with rather marked evidences of anæmia. At no time was there any albumen in the urine.

A brother, aged 7 years, who had been isolated at the first appearance of these symptoms in the younger children, six days after the exhibition of the first symptoms in the younger child, became ill, the temperature in this instance being somewhat higher, 103 degrees, stiffness of muscles of neck, slight trouble in deglutition, enlarged post-cervical glands and same uniform diffuse redness observed in the two previous instances. In his case the symptoms were rather more marked, the constipation existed, the duration of fever was, if I recollect rightly, some eight days. In this instance the glands of the opposite side of the neck were irregularly involved with some slight increase of temperature. Then a trained nurse who had



been called in to attend the two younger children, aged 24 years, at about the eighth day of her sojourn at the house complained of feeling chilly, and of headache, with malaise. On the succeeding morning I found she had a temperature of 102.3-5 degrees, and she complained also of stiffness of the muscles of the neck, together with not as marked, but still quite evident glandular enlargement of the right side. The fever in her case persisted for five days, there were profuse sweats, there was again the uniform and diffuse redness of the pharynx and so marked a condition of prostration after the cessation of the fever that she thought it well to take a short sojourn at Atlantic City. These points were of special interest to me, and after looking up the literature of the subject, the conclusion I think was a self-evident one that we were dealing with probable instances of glandular fever. The cases I have endeavored to depict are somewhat different in their details from some of those reported. In the first place the children were somewhat older than the majority of the cases mentioned by other observers and the nurse, 24 years of age, is the third case of an adult on record.

Another point I wish to emphasize is that in these four cases the enlargement of the glands occurred earlier in the disease, the mother claiming that in the one child the glands were swollen previous to the beginning of the other symptoms, and in the three

other cases the enlargement was noticed within the first 36 hours of the appearance of the fever.

As regards the question of diagnosis, it was my first impression, at least with the younger children, that we were going to deal with cases of scarlatina or roetheln; the rapid pulse, coated tongue, with red tip and edges, a temperature of nearly 103 degrees, together with the congestion of the throat were strongly suggestive and it was only after 18 hours expired and no other symptoms presented themselves that we had to exclude the above-mentioned diseases.

DR. BALL.—I would like to ask if the following case can be considered one of glandular fever. Last Saturday a little child was brought to my office and the only complaint was of catarrhal symptoms; she had no fever. In the afternoon I was called to the house, and the child, who was usually good, had been taken with an attack of crying. Temperature then was 102 degrees F., the next morning (Sunday) I did not see the case, on Monday the father came to my office and thought the child had diphtheria. I went to the house and found nothing in the throat, but in the right side of the neck a considerable glandular enlargement; the child cried every time the breast was given to it, as if swallowing was difficult and painful, but this enlargement seemed to be limited to the one side and the temperature was 101, and this morning the temperature was 100 and still the

swelling persists. At present it is very painful to the touch, but I did not look for any other enlarged glands, thinking it was a simple case of cervical adenitis.

I would like to ask Dr. Hamill if this can be considered a case of glandular fever.

DR. ALFRED STENGEL.—It seems to me in discussing the question of glandular fever, the point of the whole subject at the present time is not how shall we diagnose glandular fever, by what peculiarities shall we recognize it; however, the question is, Is there such a thing as glandular fever? I must confess in the very beginning of my remarks that I am skeptical as to the existence of a distinct form of disease, a separate entity of this kind. That there is a symptom, group or complexus of symptoms, more or less striking that we may call glandular fever is shown by the number of cases reported. I have now under my care a child with enlarged gland at the posterior border of the sterno-cleido-mastoid muscle almost at its attachment above, and this child is in a house in which influenza has been rampant, all of the servants and nearly all the members of the family having suffered from it. This child was apparently taken in the same way, but from the first day with very marked prostration, more than any of the others. This case, with some stretching, might be placed in the category of glandular fever. In considering the pathological conditions which might explain

glandular fever, we may recognize, first of all, that circumscribed enlargements or inflammations of the glands are almost always the result of irritations proceeding from neighboring parts. The occurrence of a group of enlarged glands would suggest, therefore, a local origin of the irritation or infection. It would seem likely then that in cases of what is termed glandular fever, we are dealing with some forms of infection or irritation of the nearby parts of the middle ear, of the external ear, of the upper parts of the respiratory or digestive tract. It is not necessary that the irritation proceed at once to the glands that are enlarged. As in the cases of diseases of the stomach, in which the enlarged glands found in the great omentum below the stomach, that is, in a direction away from the lymphatic flow, so in cases of glandular enlargements in this situation around the sterno-cleido-mastoid muscle, the enlargement of glands may be due to the blocking of the lymphatic flow; that is to say, the glands lower down in the neck may be affected by a process originating in the upper part of the respiratory tract, in the trachea or bronchi, and this may so obstruct the flow of lymph that there is a damming back of flow, and perhaps even retrograde embolism of micro-organisms or other irritants. In this way we may explain the glandular enlargement near the top of the sterno-cleido-mastoid muscle, when there was no irritation high up in the respiratory or digest-

ive tract, or in the ear, but irritation low down: for the latter might produce glandular disease sufficient to cause great obstruction, and consequently enlargement of the glands higher up. The glands lower down need not necessarily be themselves large enough to be striking.

It is very true that the symptoms Dr. Hamill has detailed as consequent upon glandular fever: rapid infection, infectious hemorrhagic nephritis and purpura hæmorrhagica, seem to point in the direction of streptococcus infection. The finding of this organism in so large a proportion of cases, and in practically all of the cases by one observer at least, is another evidence in the same direction, but if this should be a streptococcus infection in the glands, that by no means establishes a distinct disease. As was pointed out in the paper, one observer would establish a glandular fever of the mesenteric glands, another of the vaginal glands, and so on. The question is—Are we dealing with a distinct disease? Have we realized anything like an appreciable disease, or are we dealing with only a symptom? The symptom may be of enough importance to be recognized as an invariable indication of a disease of hidden nature, and which we know tends in certain directions. The symptom may indicate much as to prognosis, as to further results in the way of complications, etc., but I have yet to see any evidence that we are dealing with a new condition rather than with cases in which

the position of a primary disease of a local area of the mucous tract, or some accidental cause, has led to enlargement of the particular glands involved in the condition under discussion. This brings to my mind other phases of the subject of lymphatic pathology, particularly the chronic conditions. You will recall that a few years ago, Ebstein described what he regarded as a new disease, "chronic intermittent fever," and reported a symptomatology of this disease. It was afterwards found out that this was nothing more or less than what we, as a rule, call Hodgkin's Disease or pseudo-leukæmia. The occurrence of fever in Hodgkin's Disease had previously been pointed out by Bennett and Pel of Amsterdam. In all forms of glandular infection, a tendency to intermittent fever of more or less profound type is well known, so that it is not unlikely that with local irritation in the throat, or in such peculiar situation that the glands above the sternocleido-mastoid muscle high up, would become enlarged with irregular fever just as in glandular disease elsewhere. Is it not probable, therefore, that what is called glandular fever, is primarily some mucous membrane disease, sometimes influenza, sometimes, perhaps, scarlatina, sometimes, perhaps, diphtheria, with secondary infection, perhaps most frequently streptococci? It seems to me, at the present day, it is rather retrograde to come too hastily to the establishment of a new disease; and Pfeiffer's observations es-



tablish a very slim foundation. As far as I can see there is no particular right in insisting upon the existence of such a specific disease. As a symptom complex, the condition is very interesting, and in the descriptions that phase should be dwelt upon, as Dr. Hamill has done.

In the case I have reported tonight, I feel that it is wiser to consider influenza with an infection perhaps of the middle ear (not sufficiently intense to lead to marked symptoms), and secondary enlargement of a lymphatic gland, in a rather anomalous locality, than to speak of it as an instance of a new and separate disease. I am aware, of course, that the occurrence of groups of cases, or epidemics in which this symptom-complex constantly recurred, would establish a strong presumptive evidence in favor of a new and special form of infection; but have these conditions been satisfied?

DR. JOSEPH SAILER.—It seems to me that the burden of proof rests with those who look upon this as secondary to some of the other exanthemata. The streptococcus is perfectly capable of producing an independent disease; we all know it causes erysipelas, and there is no necessity for supposing that some other organism has attacked the throat first, and thus permitted the streptococcus to get in.

I cannot agree with Dr. Riesman that bacteriological literature is entirely against the homologue of this type. It is possible to vary culture media so as to obtain large or small

individuals, to increase or decrease the virulence, to obtain long or short chains, all these being derived from a single original culture.

In regard to the question as to the variation of type and treatment by Marmorek's antistreptococcic serum, I think the question is one open to discussion. Petruschky experimented with Marmorek's serum, and declared it to be absolutely non-antistreptococcic. His experiments have been repeated in France and Germany, and it has been found that this serum is effective upon virulent types of streptococcus. I think it is quite reasonable to speak of glandular fever, a disease with well marked symptoms and pathology, as an individual disease, even if it is proven to be due to the streptococcus, unless it can be shown that some other condition must precede it in the mucous membrane of the larynx.

DR. A. A. ESHNER.—Dr. Hamill has spoken of bacteriologic examinations of the blood. I should like to ask whether or not the studies of the blood have been made bearing upon the corpuscular elements, particularly as regards their number and relations among one another, and also, if histologic studies have been made in cases in which the glands had broken down, or in which post-mortem examinations were conducted.

DR. S. HAMILL.—In reply to Dr. Eshner's query, I can simply say that in the two fatal cases reported, no post mortems were made, and only blood



examinations by Czajkowski. He made bacteriologic examinations of the blood and discovered the influenza bacillus.

In answer to Dr. Ball, it is possible that his case might be one of glandular fever; but recently I had under observation, a child who had some nasal catarrh, and very decided enlargement of the lymphatic glands, anterior to the sterno-cleido-mastoid muscle, which had no other symptoms. There was no decided nasal obstruction, and the fauces were absolutely free. I examined this child daily for eight days, and on the eighth day I discovered a patch of membrane on the uvula, and the following day the child developed laryngeal obstruction. I had previously made a culture with negative results, but later the bacteriologic library of the board of health reports the existence of the Klebs-Loeffler bacillus.

I mention this because it resembles somewhat the case of Dr. Ball.

In reference to the cases reported by Moussons, he reported the symptoms referred to by Dr. Roussel, as indicative of the involvement of the bronchial glands, and I should observe from the limited pulmonary involvement, and the brevity of the course, the paroxysmal coughs and physical signs occurring on the fifth day, and subsiding completely on the tenth, and the primary involvement of the cervical glands, that the case was really one of so-called glandular fever, rather than broncho-pneumonia, as he

suggests. There are undoubtedly a great many cases in the literature reported as glandular fever, which really are not, and I think that Neumann has been very generally condemned for classifying many of his cases as glandular fever. The existence of nephritis seems to be a peculiarly frequent occurrence in this disease. In all cases, the pre-existing symptoms have been sufficient to preclude the possibility of a primary involvement of the kidney. I have been very much interested in Dr. Stengel's remarks, and when I began the study of the subject, I was of very much the same mind that he is, and I still feel we must question the existence of such a disease. However, I am very much more converted to the belief that a disease *sui generis* does exist, than before I looked into the subject so carefully. I was led to investigate this subject by the occurrence in my practice of the case which has been given in detail. At the time I was unable to classify it. It did not seem to me to answer to the condition known as simple acute adenitis. In drifting about through the literature for some more satisfactory explanation, I came across the description of glandular fever. A review of the articles communicated to this subject convinced me that the case in question answered very closely to the description given therein. I have never had under observation any other cases of glandular enlargement which so perplexed me nor for whose existence I could no

find a satisfactory cause. Recently, I have had communicated to me a description of a house-epidemic which bore a very close resemblance to the type of cases described by Pfeiffer.

Whether or not we have here to do with an individual disease may still be questioned, but the fact remains that there exists a complex of symptoms for which satisfactory explanation has not been given, and which, therefore, demands further careful study.

DR. J. H. JORSON reported a case of endocarditis in the new-born male infant, colored, aged two weeks, apparently healthy at birth. Umbilical cord separated on the eleventh day, and two days later a bloody discharge was noticed coming from the umbilicus, and the child seemed ill. When brought under observation on the following day, the patient was in a profound state of septic intoxication. There was a very offensive bloody discharge from the umbilicus, into which a probe was passed for a quarter of an inch. A short time before, there had been a passage of blood from the rectum. The child died the next day. The autopsy showed cloudy swelling of the liver, kidneys and spleen, and hemorrhagic infarcts into the lungs. There were disintegrating thrombi in the hypogastric arteries. On the opposing edges of the tricuspid and mitral valves was a number of small vegetations, which on section were found to contain micrococci. The pulmonary and aortic valves were normal.

DR. A. E. TAYLOR reported a case

of thrombosis of the pulmonary artery. The specimens were taken from an infant which died at the age of ten days. At birth it seemed healthy, but on the seventh day it was attacked with fever, dyspnea, and cyanosis, and died in extreme cyanosis two days later. The autopsy was made two hours after death. The navel and cord were clean and normal. There were hemorrhages into the lungs, lymph-glands, liver, spleen and kidneys. The pulmonary artery was entirely occluded by a firm thrombus. There was no endocarditis. Sections of the thrombus, and of the various organs, failed to reveal any bacteria. They did show universal fibrosis, with proliferative periarteritis, round-celled infiltration, and interstitial hemorrhages. I believe these changes are to be attributed to congenital syphilis, and that the case is an anomalous member of the group termed syphilis hæmorrhagica neonatorum. I have not carefully looked into the literature, but I think that there are only three cases of pulmonary thrombosis in the new-born reported.

DR. JOSEPH SAILER reported the case of a child that died at the age of 14 days. There were no symptoms before death. Dr. A. E. Taylor and Dr. Sailer performed an autopsy at the University hospital. They found slight ecchymosis in pericardium, all other organs perfectly normal, with the exception of the mitral valve, on the under surface of which were half a dozen small vegetations, which

looked as though they might be septic. Of course it is impossible to be certain of this from mere macroscopic

inspection. No source of infection was found in the rest of the body.

## BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to DR. C. G. CUMSTON, 871 Beacon Street, Boston.)

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX. 1897. Fifteenth year. New York. E. B. TREAT. Price, \$2.75.

This handy reference volume of more than 700 pages maintains the high standard of previous editions. There has been a considerable change among the contributors and to the marked advantage of the present edition. Among the new names we notice Briggs, Caille, Gottheil, Haig, and Veasey. Considerable space is devoted to Australian diseases and there are valuable articles on leprosy, by Dr. G. Armauer Hansen, Inspector-General of leprosy in Norway, and on Oriental diseases by James Cantlei. Of special value is the cosmopolitan character of the work, which cannot fail to broaden any man who carefully reads it. Prof. H. D. Chapin, of New York, has his usual suggestive and interesting articles on Pædiatrics. Advances made in gynaecology and obstetrics are equally well reported by Prof. Parvin, of Philadelphia, and Prof. More-Madden, of Dublin, Ireland. The book is this year almost exclusively devoted to new remedies and new treatment. In the few concluding pages there is a brief but excellent *resume* of sanitary science, new instruments and appliances and

of the books of the year. The make-up of the book is uniform with previous volumes, but the paper is distinctly better and the printing correspondingly clearer.

TRAITE PRATIQUE DES MALADIES VENERIENNES. By HENRI BERDAL. Paris, 1897. A. Maloine, publisher. Price, \$2.00.

This very excellent treatise of 679 pages contains a clear and practical review of all venereal diseases excepting syphilis, and we are pleased to note that the distinguished author will soon publish a second volume devoted entirely to the latter disease.

The present volume treats of gonorrhœa and its complications in both male and female, and we are happy to see that for once this disease has been well studied in the weaker sex, for in our American works on venereal disease, gonorrhœa in the female is hardly referred to. This affection is discussed in the first 374 pages of the book.

Simple chancre and its complications occupies 118 pages, while the remainder of the book is devoted to the various forms of balano-posthitis, herpes, phimosis and paraphimosis in their relations to venereal affections, phtiriasis of the pubis, closing with a



very full and practical formulary. We cannot say too much in favor of this most practical book, which is in every way suited for the instruction of the general practitioner and gynecologist, and we trust it will be read by those who desire to be well informed in those branches that are of every day occurrence in the practice of all medical men. The figures and plates are well done.

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TRAITE DE KINESITHERAPIE GYNECOLOGIQUE. By DR. H. STAFFER. Paris, 1897. A. Maloine, publisher. Price, \$2.00.

The book before us on gynecological massage is far too voluminous for us to give it a complete review. Suffice it to say that in its 625 pages will be found discussed by a clever and trustworthy physician, all that is to be known about this important branch and we do not hesitate to say that it is by far the best work that has as yet been published. It is well illustrated and clearly written.

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HANDBUCH DER GYNAEKOLOGIE. Edited by Prof. J. VEIT. Wiesbaden, 1897. J. F. Bergmann, publisher. In three volumes.

We have before us the first two volumes of this very complete treatise on gynecology, written by a staff of men, the name of each being known the world over.

Vol. I treats of Asepsis and Antisepsis in gynecology by Loehlein; the positions and abnormalities of the uterus and its neighboring organs, by Kuestner; the diseases of the vagina, by Veit; gonorrhœal affections of the genito-urinary system of the female,

by Bumm, and lastly the embryology of the female genitals by Nagel.

The second volume contains the following chapters: Diseases of the Bladder, by Fritsch; Methods of Physical Examinations of the Bladder, by Viertel; Atrophia Uteri, by Doederlein; Anatomy and Histology of Myoma, by Gebhard; Etiology, Symptomatology, Diagnosis and Prognosis of Myoma, by Veit; Electrical Treatment of Myoma, by Schaeffer; Palliative Treatment and Vaginal Operations for Myoma, by Veit; Abdominal Operations for Myoma, and Pregnancy Complicated by Myoma, by Olshausen.

The subjects are treated in a masterly manner as might be expected, and in closing we can only say that this work is to be most highly commended.

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THE PRACTICE OF MEDICINE. By HORATIO C. WOOD, A.M., M.D., LL.D. (Yale), and REGINALD H. FITZ, A.M., M.D. Complete in one handsome octavo volume of 1062 pages. Cloth, \$6.00; sheep, \$7.00; half Russia, \$7.50. The J. P. Lippincott Co.

Drs. Wood and Fitz have given the profession a very conservative book, and in many ways an excellent one. Dr. Wood has contributed the sections on nervous diseases, diseases of the muscles, infectious diseases, excepting diphtheria, dysentery, tuberculosis, syphilis and leprosy and all the therapeutics of the work. Dr. Fitz has contributed the remainder of the matter.

Among the best points is the considerable space devoted to appendicitis, which in other books on medicine has



been sadly neglected. Another is the absence of formulæ and figures. The authors have persisted in employing the Fahrenheit scale and the old weights in prescribing.

There is nothing particularly remarkable in the contributions on the pathological anatomy, but on the whole the book may be recommended as a good guide to the student and practitioner.

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KURZGEFASSTES LEHRBUCH DER MIKROSKOPISCH - GYNAEKOLOGISCHEN DIAGNOSTIK. By Dr. J. A. AMANN, Jr. Wiesbaden, 1897. J. F. Bergmann, publisher.

This is a most excellent work on the microscopical diagnosis of gynaecological affections; to be particularly noted is the very careful execution of the figures. The book will be found highly valuable for those engaged in the practice of scientific gynaecology and pathology.

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PRACTICE OF MEDICINE. By JAMES TYSON, M.D. Philadelphia, 1896. P. Blakiston, Son & Co., publishers.

In going over this large volume of some 1100 pages, one is impressed with the immense amount of matter contained within them, and also the vast personal experience of the writer.

A detailed review of so considerable a volume would entail morespace than we could give to do it justice, and in closing we can but state that after careful examination, we are certainly inclined to say that this is the best single volume written by one author that has as yet been published on this side of the Atlantic.

MEDICAL DIAGNOSIS. By JOHN H. MUSSER, M.D. Second Edition. Philadelphia, 1896. Lea Brothers & Co., publishers.

The second edition of this justly well-known work is before us. A work of this nature demands much care and reflection in its preparation, and the author has certainly shown that he has given both. We think that a number of articles are passed over far too lightly, as for example, enteroptosis, diseases of the rectum, pulmonary embolism and thrombosis, and a certain number of others. By far the most excellent section of the book is the one on the data obtained by observation.

The book taken all together is good and can be placed among the best of its kind, and we trust that a third edition will appear shortly, as it no doubt will.

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ARTIFICIAL ANÆSTHESIA. By LAWRENCE TURNBULL, M.D., Ph.G. Philadelphia, 1896. P. Blakiston Son & Co., publishers.

A complete *resumé* of the various methods and agents employed for the production of anaesthesia. Good in every respect.

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THE YEAR-BOOK OF TREATMENT FOR 1897. A Critical Review for Practitioners of Medicine and Surgery. Crown octavo, 488 pages. Cloth, \$1.50. Philadelphia and New York. Lea Brothers & Co., 1897.

This issue of the well-known Year-Book is as complete, and in quality, as high, as the former ones.

# ANNALS OF GYNECOLOGY AND PEDIATRY.

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## ORIGINAL COMMUNICATIONS.

### SECONDARY OPERATIONS.\*

HENRY J. GARRIGUES, M.D.

PATIENTS have sometimes an almost superstitious belief in the efficacy of operative procedures. While they are apt to exaggerate the danger to which they expose themselves by undergoing an operation, and, therefore, are not easily persuaded to have it performed, yet, if they once make up their minds to submit to the knife, they expect that to be the end of all treatment called for in their case. I recently performed colpoperineorrhaphy and Alexander's operation on a patient, who hoped thereby to be cured of dyspepsia and pulmonary tuberculosis.

Gynecologists themselves may be led to form erroneous opinions of the final results of their work. A patient

may be sent from the country to a surgical centre; she is operated on, recovers, goes home, and that is often the last the operator hears of her. It is the same in hospital and dispensary practice in large cities. In case of post-operative trouble the patient often loses confidence in the surgeon who has operated on her, and applies for help in another institution.

Often the operation should only be a link in a chain of measures adopted for the relief of the patient's sufferings, and it need by no means always be the last link. Thus much time, trouble, pain, and expense may sometimes be avoided by a curetting, packing, and drainage of the uterus instituted at the beginning of the treatment, but to be followed by other remedial procedures.

In certain conditions, such as in

\*Read before the American Gynecological Society, Washington, 1897.

cases of carcinoma of the womb or breast, the possibility and even the probability of a relapse are so great that the patient should be expressly told to report every few months in order to be reëxamined.

Sometimes all the additional treatment called for is a mere trifle, and still by delay in seeking advice, the patient may be reduced to a condition of serious suffering and illness as in the following case:

CASE I.—Mrs. S. æt. 51. On May 15, 1895, I performed vaginal hysterectomy and double salpingo-oöphorectomy on her for uterine fibroids and chronic oöphoritis. Five weeks later she left St. Mark's Hospital seemingly well, and I did not hear from her for a whole year, when she came to my office in such a condition of weakness that she had to be accompanied to and from my office, and supported while crossing the floor. She complained of frequent attacks of vomiting and diarrhoea, pain in the hypogastric region extending to the sacral region and a constant vaginal discharge. Upon examination I found a small granulating surface at the vault of the vagina, where the opening had been made for the removal of the internal genitals. There was also a tender swelling in both sides of the fornix corresponding to the stumps of the broad ligaments.

The granuloma was healed in a few days by curetting and application of nitrate of silver in substance, when

all discharge ceased. The swelling around the stumps required a longer treatment by electrolysis, under which her dyspeptic troubles disappeared, her strength returned and her pains were reduced to an occasional backache.

In other cases more serious, even capital secondary operations may be required. A frequent cause of a continuation of suffering is more or less extensive adhesions formed in consequence of the primary operation as in the three following cases.

CASE II.—Miss B., aged about 25 years, is one of those patients who wander about from dispensary to dispensary and from hospital to hospital. She was referred to me by Dr. F. C. Valentine, who had been treating her for some bladder trouble.

She had undergone no less than seven laparotomies before I saw her. According to her statement, both ovaries, the appendix vermiformis, and part of the intestine had been removed at various occasions. She complained of intense pain all over the abdomen.

In performing the eighth laparotomy I removed the whole cicatrix, six inches long and four wide, which had resulted from five of the preceding operations, leaving only two scars on the right side at some distance from the median line, and probably resulting from her scolecetomies and intestinal resection. I found extensive adhesions between the transverse colon and the anterior abdom-

inal wall, which were either torn or cut between two ligatures. This operation freed her from all pain in the abdomen. When she consulted me some time later, it was for inability to urinate, a trouble seemingly due to hysterical paralysis of the detrusor muscle of the bladder. I began to treat her with the faradic current, but soon lost sight of her, whether on account of her being restored to health or on account of her dislike of the treatment, I do not know.

CASE III.—MRS. L. B., æt. 22, who since the birth of her child, 5 years before, had been suffering from constant backache. Two years before I saw her, she had had both appendages removed. Of late she had complained of much pain in the left lumbar region, and often suffered from headache and dizziness. On July 18, 1896, I removed her uterus from the vagina by Péan's method and then performed laparotomy, making the incision parallel to the old scar, a fingerbreadth to the left of it. Nevertheless I found it very difficult to work in the hard, thickened tissue. The peritoneum looked like a muscular layer, and was a quarter of an inch thick. Numerous adhesions were found between the omentum and the anterior abdominal wall, which were partly torn, partly tied with a single or double ligature, and cut. An extensive adhesion between the descending colon and the anterior abdominal wall was treated in the same manner. A large por-

tion of the omentum extended down into the left side of the pelvis and was adherent there. This was severed between two ligatures. The patient left the hospital entirely free from pain at the end of three weeks.

CASE IV.—Miss M. K., æt. 26, had been operated on twice before I saw her. After the first operation, consisting in double abdominal salpingo-oöphorectomy she had had severe pain in the right iliac region, which had ceased after the second operation, the nature of which she did not know, but which doubtless had been severance of adhesions. When she consulted me, she had a similar pain on the left side and much backache. In this case I performed, on April 16, 1896, first, laparotomy and then vaginal hysterectomy. The patient being very stout, it was necessary to make an incision up to the level of the umbilicus. As in the preceding case, it was made a fingerbreadth to the left of the median line, the site of the old scar. The omentum was found extensively adherent on both sides, which adhesions were cut between ligatures; and furthermore there was a roof-like adhesion extending from the sigmoid flexure to the bladder, which could be torn without causing any hemorrhage. The uterus was very small, as it always is after oöphorectomy, the sound entering only two inches. On account of this and the great thickness of the abdominal wall which made it difficult



to throw light into the depth of the pelvic cavity, I thought it would be easier to remove the uterus from the vagina, which I did, but the patient being not only a nullipara, but a virgin, the very small dimensions of the vagina made this difficult too. The patient was entirely relieved of her pain, however, and it has never returned, as she told me, when I recently met her, nearly a year after.

In the following two cases I had myself performed salpingo-oöphorectomy, and the complaints continuing I added vaginal hysterectomy.

CASE V.—Mrs. C. C. was referred to me by Dr. F. M. Bauer. On June 9, 1891, I removed both tubes and ovaries, the latter being the seat of small-cystic degeneration. She had less pain in the abdomen after the operation, but menstruation not only continued, but often was profuse and painful. She was for several months treated with strong galvanic currents according to Apostoli's method and later with the high-tension faradic current. Menstruation ceased three years after the removal of the appendages, but she always had backache and pain in both legs, and consented finally to have the uterus removed, which I did on September 25, 1895, more than four years after the first operation. It was found in an atrophic condition, like that in the preceding case, and imbedded in adhesions, which made the operation somewhat difficult. It was, however, successfully removed

by Péan's method. This second operation gave additional relief, but did not cure her. When I saw her again in December of the same year, she still complained of backache and pains in the legs. I found rather considerable swelling around both stumps of the broad ligaments and at the base of the bladder, which improved much under the use of the galvanic current, and I suppose she has finally recovered.

CASE VI.—Mrs. H., æt. 28 years, had been suffering since the birth of a child seven years before. Palliative treatment having proved ineffectual, I removed both appendages on October 17, 1894. There were no adhesions, and the organs were easily removed through an opening just large enough to admit two fingers. Both ovaries were much enlarged and full of cysts, many of them filled with blood, and the right ovary contained two gyromas. She made a good recovery, but the pain continued unabated. On January 21, 1895, I therefore removed the uterus, using Pratt's method. There were no adhesions, except at the cornua, where the appendages had been tied and cut; but although only three months had elapsed since the removal of the ovaries, the uterus was found atrophic as in the other cases.

While this patient was still confined to her bed, she developed pain in the left side of the abdomen, and on examination it was found that the

corresponding kidney had become dislodged, and had sunk down to the level of the crest of the ilium. This is the only case of this kind I have seen after hysterectomy, but I should not wonder if others were reported. In removing a uterus, especially if it is large, we leave a vacant space which has to be filled with some parts of the contents of the abdomen. As a rule it will be the movable coils of the small intestine that fill out the empty space left between the bladder and the rectum, but it does not seem unlikely that this may occasionally give rise to the disease known as enteroptosis, or Gilénard's disease, and especially to floating kidney, a disease which is found much more frequently after childbirth than in nulliparae, which fact leads us to suppose that the great diminution in size of the womb during labor and involution has something to do with it.

I proposed to perform nephorrhaphy on her, but being unable to obtain a bed for her right away, the operation was performed by another.

Finally, I may briefly refer to a case I have described elsewhere\* *in extenso*.

CASE VII.—Mrs. G. V. D., æt. 29. On June 27, 1894, I performed symphysiotomy on her on account of a soft pelvic tumor which prevented the birth of the child, and I delivered her of one weighing ten and three-quarter pounds. Although there

was no mobility in the symphysis pubis, she had a waddling gait, when she got up after the operation, and pain in all the three joints of the pelvis. On December 15, of the same year, I removed both appendages and the uterus from the vagina by the clamp method. One of the ovaries was in a state of small cystic degeneration and the other was changed into a dermoid cyst. She made a good recovery, and her gait became entirely normal. I have seen her two years later, when she was still in excellent health.

*Can we do anything to avoid secondary operations, and ought it always to be done?*

Since extensive adhesions, as we have seen in some of the above cases, give rise to great and protracted suffering, and necessitate delicate and somewhat dangerous operations, I think we should do what we can to avoid them. Raw surfaces may be covered with peritoneum, but the very sutures we use for this purpose act as an irritant and are covered with newly-formed tissue, very apt to adhere to some neighboring surface. It is also useful to cover such raw surfaces with iodoform or aristol, which with exuding lymph form a layer that to some extent prevents adhesion. But above all I believe the intestine should be treated with the utmost care. In order to get a view of the pelvic cavity I have seen the intestine covered with coarse towels and pushed up into the upper part of the

\* *Medical Record*, vol. xlv. p. 577, Nov. 10, 1894, and vol. xlvii. p. 234, Feb. 23, 1895.

abdominal cavity. In our just apprehension of infection we are apt to forget that violent mechanical handling, by scraping off the fine endothelium which covers the intestine, and prevents it from adhering to other surfaces, may become injurious in itself, independently of any infectious action. Only the very finest gauze pads or the very softest of sponges should be used in the peritoneal cavity, and they should be used as cautiously as possible. As to unavoidable adhesions, they are in some degree overcome and made innocuous by moving the bowels as soon as the patient has recovered sufficiently to stand it—as a rule forty-eight hours after the operation.

It has become the fashion of late to remove the uterus together with the appendages, and the only point of diversity of opinion seems to be whether it should be done through the abdominal wall or the vaginal roof. In the writer's opinion it would in many cases be better only to curette the uterus and leave it, even when both appendages are removed. Experience during the twenty years in which Tait's operation was almost universally practiced has shown that in the majority of cases the patients were delivered of their sufferings, and restored to good and often robust health. On the other hand the removal of the uterus entails a danger of its own. It is evident that the re-

moval of this organ, even when done rapidly and without loss of blood, causes a much greater shock to the system than the removal of the appendages. If we leave the uterus, the operation is much safer; the uterus undergoes so great an atrophy, that within a few months it shrinks to half its original volume. In most cases it gives no trouble, and is even mechanically useful by filling part of the pelvic cavity and thereby preventing displacements of the organs enclosed in the upper part of the abdominal cavity. If in exceptional cases the patient is not cured by the salpingo-oöphorectomy, hysterectomy may follow later, when it is both easier and safer. In the meantime the organism has gradually accustomed itself to do without the uterus, and there is little or no shock.

For the swelling often forming around the stumps left by the removal of the appendages or the uterus, I have found the electrolytic effect of a strong galvanic current applied to the vaginal roof and the abdominal wall very useful, both in regard to absorption and relief from pain.

Granulomas found in the vagina, at the place where hysterectomy has been performed or where pelvic abscesses have been opened, yield rapidly to ennetting, application of lunar caustic, and cleanliness.

New York City.

## PELVIC BLOOD COLLECTIONS AND THEIR TREATMENT BY VAGINAL INCISIONS.\*

EDWARD E. MONTGOMERY, M.D.

COLLECTIONS of blood in the pelvis forming what is known as blood tumors were early recognized. Such a condition has been described by Ruysch in 1691. Such a collection was described by Recamier in 1831, in which the tumor formed behind the uterus following a miscarriage. Supposing it to be an abscess, it was opened, when congealed blood escaped. Cases were described by Velpeau, Bernutz and others, but Nela-ton in 1850 was the first to give a clear, intelligent account of the affection, which he denominated as retro-uterine hematocele. The term hematocele was at first limited to those cases in which blood was extravasated into the peritoneal cavity, but later was extended to collections of blood in the pelvis, either within or external to the peritoneum. Hemorrhage most generally takes place into the peritoneal cavity, accumulating in its most dependent portion, Douglas cul-de-sac, but it may take place also beneath the peritoneum, in the cellular tissue, in the broad ligament, in front of the uterus, or behind that organ. Intraperitoneal hemorrhage is far more dangerous, as

where a vessel of considerable size ruptures, there is nothing to obstruct or prevent the bleeding, until the patient becomes so anæmic that a clot takes place into the vessel as a result of the weakened condition of the heart. The patient may die from shock or from profound loss of blood before this can take place. Hemorrhage into the cellular tissue is much less dangerous, for the reason that it is to a degree self-limited. The accumulation of the blood by its pressure arrests the hemorrhage. Internal hemorrhage may arise from a variety of causes, each of which may produce either the intra or the extra-peritoneal form. The most frequent cause is rupture of an ectopic gestation. Other causes are: escape of the fetal sac through the abdominal orifice of the tube; rupture of hemorrhoidal vessels, tearing of the tube or pelvic adhesions by massage, examination of patient, or other traumatic lesions. Rupture or perforation of the uterus; rupture or injury of an ovarian growth; twisting of the pedicle of an ovarian or broad ligament cyst; malignant disease of the ovary or tube; internal hemorrhage during menstruation or following an abortion or miscarriage; slipping of

\* Read before the American Gynecological Society, Washington, 1897.



the ligature following an operation or a slipping back of the artery and hemorrhage taking place into the broad ligament or stump.

The symptoms will depend largely upon the situation of the hemorrhage. As has been stated, intraperitoneal hemorrhage is far more serious. It is usually attended with symptoms of shock, the patient being taken suddenly with profound anaemia, face blanched, pupils dilated, countenance anxious, sighing, irregular respiration, skin covered with cold, clammy perspiration, pulse feeble or entirely absent, heart beating rapidly and feeble. The patient may die within a few minutes as a result of the severe shock.

It was my unfortunate privilege to see a patient upon whom a diagnosis of ectopic gestation had been made, in which beneath the sac was a pulsation similar to that of the radial artery. Diagnosis having been made of ectopic gestation, the physician brought her with the privilege of making an examination, during which time I left the room. I was called back in less than ten minutes to find the patient presenting all the symptoms of immediate dissolution. The condition of rupture was recognized and an operation urged, but the consent of the patient and her daughter, who was with her, could not be secured. Her husband was sent for, arrived within less than an hour. The abdomen was opened, found to contain two quarts of fluid

blood, the bleeding vessel was immediately secured and ligated, the abdominal cavity irrigated, but the patient only survived the operation a couple of hours; she did not rally from the shock.

Not all cases of intraperitoneal hemorrhage, however, result so fatally. In some the bleeding may be arrested early. In others it is slow and the patient is enabled to partly maintain her strength in spite of the hemorrhage. The symptoms of extraperitoneal hemorrhage are not so profound. The patient may suffer more pain from the tearing up of the cellular tissue, pressure upon the nerves, upon the bladder, or upon the rectum. There is a sensation of weight and pressure, of discomfort in the pelvis. Hemorrhage may not be sufficient to produce marked shock, although the patient probably will present a history of having felt weak and faint. The extraperitoneal hemorrhage permits the recognition of a mass or tumor in the vicinity of the uterus. If in one broad ligament, the uterus may be pushed over to the other side of the pelvis, and the entire broad ligament or side of the pelvis filled up by the blood collection. Such a collection may press upon the bladder, giving rise to frequent desire to urinate, to sensation of vesical tenesmus. The pain, presence of tumor, more or less anæmic appearance of the patient, the history of disturbed menstruation or an injury, will generally be sufficient to permit

of the diagnosis. Intrapelvic hemorrhage, however, does not afford any physical signs until after it has become encysted, when the history of a sudden onset, presence of a collection in Douglas' pouch, and the pulse of the patient should be sufficient to afford suspicion as to the character of the trouble. Where it has remained for a length of time, it may become infected from the tube, or its proximity to the intestine, giving rise to septic phenomena. After the hemorrhage has been arrested, unless the collection has become infected, Nature shows a disposition to favor its absorption and disappearance. Such collections may be entirely absorbed after a length of time, leaving no, or, but little, indication of their previous existence.

In other cases they remain for a long period, give rise to secondary manifestations, possibly suppuration, to opening by pressure into the rectum or vagina or bladder, and permitting the discharge of blood by one of these avenues. The most fortunate termination is the opening into the vagina. That into the rectum is usually situated so high up, not at a point at which the cavity can be thoroughly drained, but one which favors the escape into the sac of the contents of the bowel, with the increased danger of infection and suppuration. The treatment must necessarily vary greatly as to whether the collection is recent and still accumulating, or has existed for some time. It may

be a question as to the wisdom of immediate resort to operation in cases of recent hemorrhage. If we have reason to believe that hemorrhage has ceased, and the patient has recovered from shock, certainly it would be unwise in such cases to advocate vaginal incision and the removal of the blood collection with possible displacement of the clot in the bleeding vessel, the redevelopment of hemorrhage, with the inability to determine and secure the point from which the hemorrhage has taken place. Certainly in such cases, if we have reasons to believe that hemorrhage is still continued, the wisest plan of procedure would be to institute such measures as to promote the most favorable condition of the patient, and at once open the abdomen and secure the bleeding vessel, subsequently removing or not the blood collection as the condition of the patient may indicate.

The recognition of the fact that these collections of blood were in the majority of cases ultimately absorbed, has led many physicians to advocate a resort to the method of expectant treatment, in preference to operation. When we consider that these collections of blood are large, the possibility of their being infected by proximity to the intestine or a diseased tube, or uterus, the possibility of the clot becoming more or less partially organized, formation of thickening and adhesions, would certainly seem to make it advisable to resort to operative interference in prefer-

nance to the expectant procedure. In all cases in which a collection has existed for such a length of time as to render probable the obstruction of the vessel and discontinuance of hemorrhage, the collection should be evacuated, whether it be situated free in the abdominal cavity, encysted, or whether it may have taken place beneath the peritoneum, forming an extraperitoneal blood collection.

The operative treatment, in such cases, through the vagina is preferable, for the reason that it permits of our reaching the blood collection and evacuating its contents with a far less severe and dangerous procedure than would be the opening of the abdominal wall and the bailing out of large collections of blood through the peritoneal cavity. Veit has asserted that the blood from an intraperitoneal hemorrhage does not coagulate nor become encysted unless there has been previous inflammation of the pelvis and the formation of adhesions. This assertion, however, we cannot credit, as it has been our privilege to see quite a number of cases in which hemorrhage has taken place into the peritoneal cavity, resulting in its being encysted in Douglas' pouch and presenting large masses of clotted blood. The vaginal operation should be a free incision and not a mere puncture, an incision which will permit of the introduction of two fingers and the pressing out and emptying of the clots from the pelvic cavity. The clearing out of the mass

should be followed by irrigation with a normal salt solution, using a large quantity of this fluid and at the same time manipulating the parts to remove and wash away portions of clot. While this is being done, the abdomen should be carefully held between the hands of an assistant, pressing its contents toward the pelvis. Incision preferably should be made by the thermo cautery, as the cauterized surface will be less likely to close prematurely, and lock up the material in the pelvis. As the cavity is being cleaned, and being free from fibrine masses of clotted blood, the tube and ovary on either side should be carefully examined to ascertain their relation to, and responsibility for the hemorrhage. If the tube presents evidence of having been ruptured and contains a clot, it should be drawn into the vagina, ligated, and the clotted mass removed. The pelvic cavity should then be packed with sterilized or iodoform gauze, filling it up, which will favor drainage of serum and the escape of any morbid material still remaining. This operation, as we have said, should be a free vaginal incision; a mere puncture, or the use of the aspirator cannot be considered otherwise than reprehensible, as the puncture affords opportunity for introduction of infectious material, and does not afford a chance for subsequent drainage. We would then advocate vaginal incision and the evacuation of blood collections, first, for the reason

that in so doing we remove the possibility of its infection and subsequent suppuration; second, its removal leaves a clean surface which will subsequently resume its normal conditions and functions, while the retention of the clot could not but result in its partial organization and the for-

mation of unfortunate adhesions which cannot but influence unfavorably the future health of the individual; third, vaginal incision and drainage can be practiced with but slight danger to the patient, far less, indeed, than would result from the retention of the blood collection.

## APPENDICITIS COMPLICATING EXTRA-UTERINE PREGNANCY.\*

CARL E. BLACK, M.D.

I wish to present to you today the report of a rare case, with specimen. The case is one of extra-uterine pregnancy, or, more properly, tubal pregnancy, complicating appendicitis.

As proof of the rarity of extra-uterine gestation it is said that "during seven years in the three Lying-in Clinics and Gynecological Clinic of Professors Carl Braun and Spath in Vienna, among 60,000 cases, five cases of extra-uterine pregnancy were discovered during life and examined *post mortem*." Bandl says he examined the female genitals *post mor-*

*tem* in 1000 cases and did not find a single tubal pregnancy. Thus we see that extra-uterine pregnancy does not occur once in 1000 women and probably not more than once in 10,000 pregnancies.

Four authors have collected and tabulated cases of extra-uterine pregnancy, namely, Kiwisch, Hecker, Schauta and Henning. Their collections of cases were made separately, an aggregate of 1008 cases with a mortality of over 53 per cent, and of those recovering 202 were saved by operation.

RESULTS IN 1008 CASES OF EXTRA-UTERINE PREGNANCY.

Reporter.	Cases.	Died.	Spontaneous Recovery.	Operative Recovery.	Per cent of Deaths.
Kiwisch . .	100	82	15	3	82
Hecker . .	132	56	62	14	42
Henning . .	150	133	5	11	88
Schauta . .	626	257	195	174	41
	1,008	528	277	202	53

\*Read before the Morgan County Medical Society, 1897.



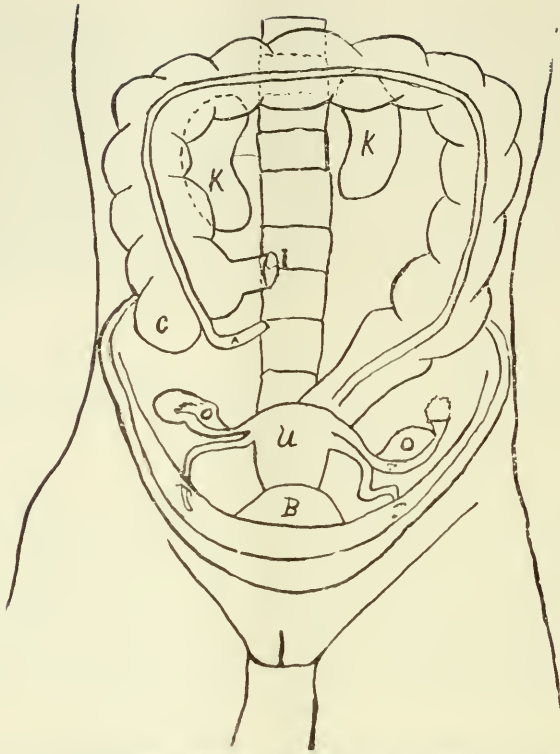


FIG. 1. — Diagrammatic representation of the normal relations of the (U) Uterus, (B) Bladder, (T) Tube, (O) Ovary, (A) Appendix, (C) Cecum, (K) Kidney.

On the other hand, some reporters have met quite a number of cases. Lawson Tait has reported operations in 35 such cases. Of course, cases coming to the surgeon represent the cases of a large number of practitioners in a wide territory.

Extra-uterine pregnancy may occur in any portion of the tube, in the wall of the uterus, or perhaps in the ovary itself. Usually it is within the tube. As the tube is expanded with the growth of the ovum, one of two things will occur; either the ovum will be aborted through the fimbriated extremity of the tube and escape

into the abdominal cavity, or the fimbriated extremity will become sealed and the wall of the tube will be ruptured. Rupture of the tube usually occurs about the second month, rarely during the first month, and seldom awaits the fourth month. When the ovum escapes through the fimbriated extremity it always occurs before the eighth week, as after that the end of the tube is securely sealed. If the ovum is extruded from the tube prior to the eighth week, it may go on and develop in the abdominal cavity, proceeding to full term, if hemorrhage is slight. Thus, when the wall of the

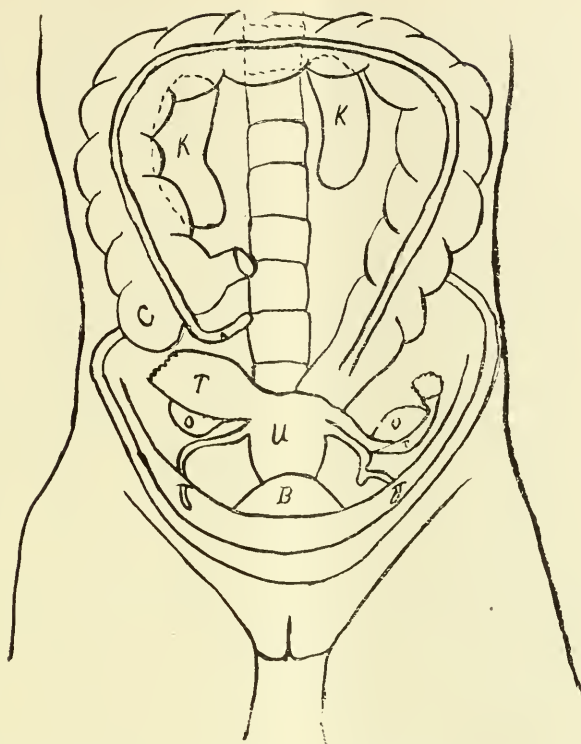


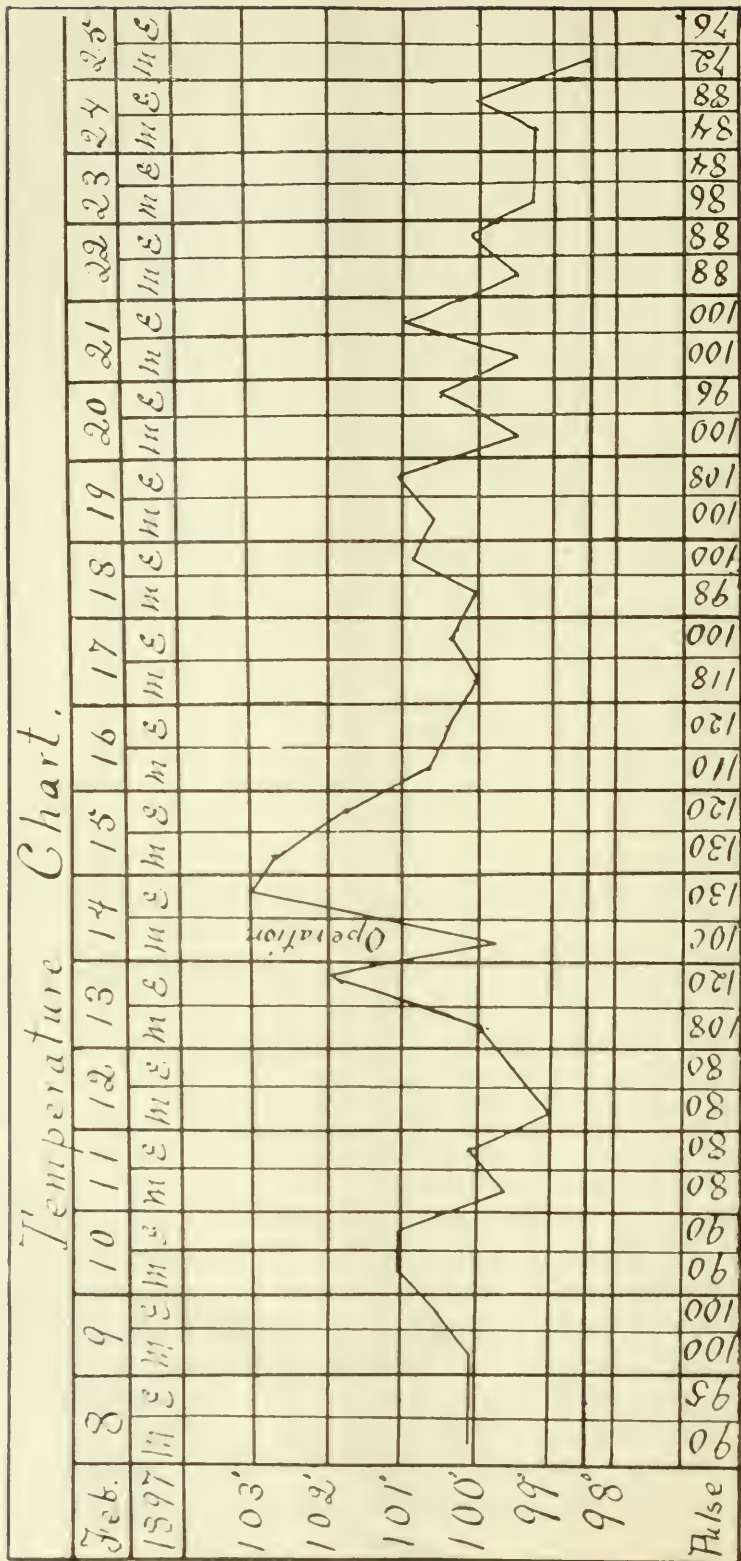
FIG. 2.—Diagrammatic representation of the relations of the (T) pregnant Tube to the (A) Appendix.

tube is ruptured we have the most serious consequences in the early part of the gestation. The tube may be ruptured and the contents escape into the abdominal cavity, or the tube may rupture and the contents escape under the peritoneal covering of the broad ligament, and there it may develop for a longer or a shorter period, and finally rupture and escape into the peritoneal cavity.

On Saturday, February 13, about noon I was called by Dr. M. A. Halstead, of Jacksonville, to see Mrs. C., age 22. She had at that time been sick just a week with the following

history: On the Sunday morning previous (February 7), she began to menstruate and had a great deal of pain and tenderness. The husband called at the doctor's office and was given some morphine to quiet the pain, the doctor supposing it simply a painful menstruation. The pain continued, however, and was accompanied by rise of temperature, not exceeding  $100^{\circ}$ . Cathartic was administered and morphia continued. At this time a digital examination revealed nothing except an extremely tender uterus. The examination was accompanied with intense pain. At

## Temperature Chart.



this time, in the absence of the regular attendant, Dr. W. C. Cole saw the patient and made a digital examination, but was unable to discover anything in the pelvis excepting a very tender uterus.

On Monday morning temperature continued about  $100^{\circ}$ ; patient expressed herself as in every way feeling better. On Tuesday the pain became more severe, always being referred to the right appendiceal region. Tympanites developed with muscular rigidity. Menstruation continued and seemed normal. Digital examination showed uterus still very tender. Examination of the abdomen gave a feeling of bogginess in right inguinal region with greatest tenderness at McBurney's point. Temperature ranged from  $100^{\circ}$  to  $101^{\circ}$  and patient most of the time with legs drawn up.

On Wednesday all the symptoms were better, although temperature continued about  $100^{\circ}$ . On Thursday the patient still seemed better excepting the temperature remained about  $100^{\circ}$ . On Friday all the symptoms were improving, temperature ranged from  $99^{\circ}$  to  $99.5^{\circ}$ . During these days, however, the menstruation continued and the patient had considerable tenderness and muscular rigidity on the right side about the appendiceal region. The symptoms were such that the attending physician was forced to the conclusion that patient was passing through an attack of appendicitis.

At noon on Saturday the patient had a second and most severe attack of pain followed by symptoms of collapse. Pulse became weak and thready, temperature rose to  $102^{\circ}$ , and patient seemed to be in imminent danger from what seemed to be a rupture of an appendiceal abscess. It was in this condition that I first saw her and I could only agree with the diagnosis of appendicitis with rupture, as the symptoms seemed almost typical of that disorder, excepting that the pain instead of radiating upward, as it usually does in appendicitis, was inclined to radiate down into the pelvis. There was also extreme tenderness of the uterus which was unlike appendicitis. However, it was evident that the patient had some marked local trouble and that an operation was indicated.

Preparations for operation were at once made and during the afternoon the patient was removed to Our Savior's Hospital. She seemed to rally a little, however, from the extreme condition which she had been in at noon, and it was decided if possible to postpone the operation until early next morning, although all preparations were made so that operation could be made at any moment if the necessity arose.

Patient suffered considerable pain during the night, but there was no sharp or sudden attack. In the morning she showed marked exhaustion, very weak, almost imperceptible pulse, and a general condition which



was very hard to account for, even presuming that there had been a rupture of an appendiceal abscess.

All preparations having been made for exploratory abdominal operation, the patient was anaesthetized and a careful vaginal examination made under anaesthesia. This revealed nothing excepting a feeling of fullness in the vault of the vagina, but no tumor or circumscribed swelling could be discovered.

The operation was begun for the removal of the appendix, the lateral incision being made down to the peritoneum. The peritoneum bulged markedly into the incision, looked dark, and as soon as nicked with the scissors a large quantity of dark blood rushed out. The incision was hurriedly extended downward until the finger could reach the uterus. The right tube was found very large. This was brought into view as quickly as possible, and a ligature applied close up to the uterus. The tube with its contents was removed with a considerable portion of the peritoneum and the broad ligament. A large quantity of blood and blood clots was taken out of the abdominal cavity among which was found the extruded ovum. Almost as soon as the abdominal incision had been completed the appendix came into view and showed unmistakable inflammation. However, this was not removed until after the uterine difficulty had been attended to; then the appendix was removed in the usual way, and after

thoroughly sponging out all the blood clots from the peritoneal cavity the abdominal incision was closed, each layer being sutured separately with a running catgut suture.

The patient, although extremely feeble previous to the operation, the pulse being hardly perceptible at the wrist, has made an uninterrupted recovery. There has been no pain since the operation, and in fact nothing to complicate the recovery. There was very slight superficial suppuration at one point in the wound, but this was merely in the skin and did not retard in any way the progress of the case.

To me, this has been an unusually interesting and instructive case. First, as to the diagnosis. We were right in our conclusion that it was appendicitis, and yet, after all, very few symptoms in the case were due to the appendicitis, and the patient would probably have passed through catarrhal appendicitis without special difficulty, had it not been for the ectopic gestation. On the other hand, the fever which the patient had continuously was misleading as to the rupture of a tubal pregnancy, for in a case with internal hemorrhage we would rather expect the temperature to be sub-normal. The rupture in this case occurred in such a way that it really consisted of a series of ruptures. The tube ruptured into the broad ligament, raising the peritoneum, and forming a clot under the pelvic peritoneum, and as successive por-

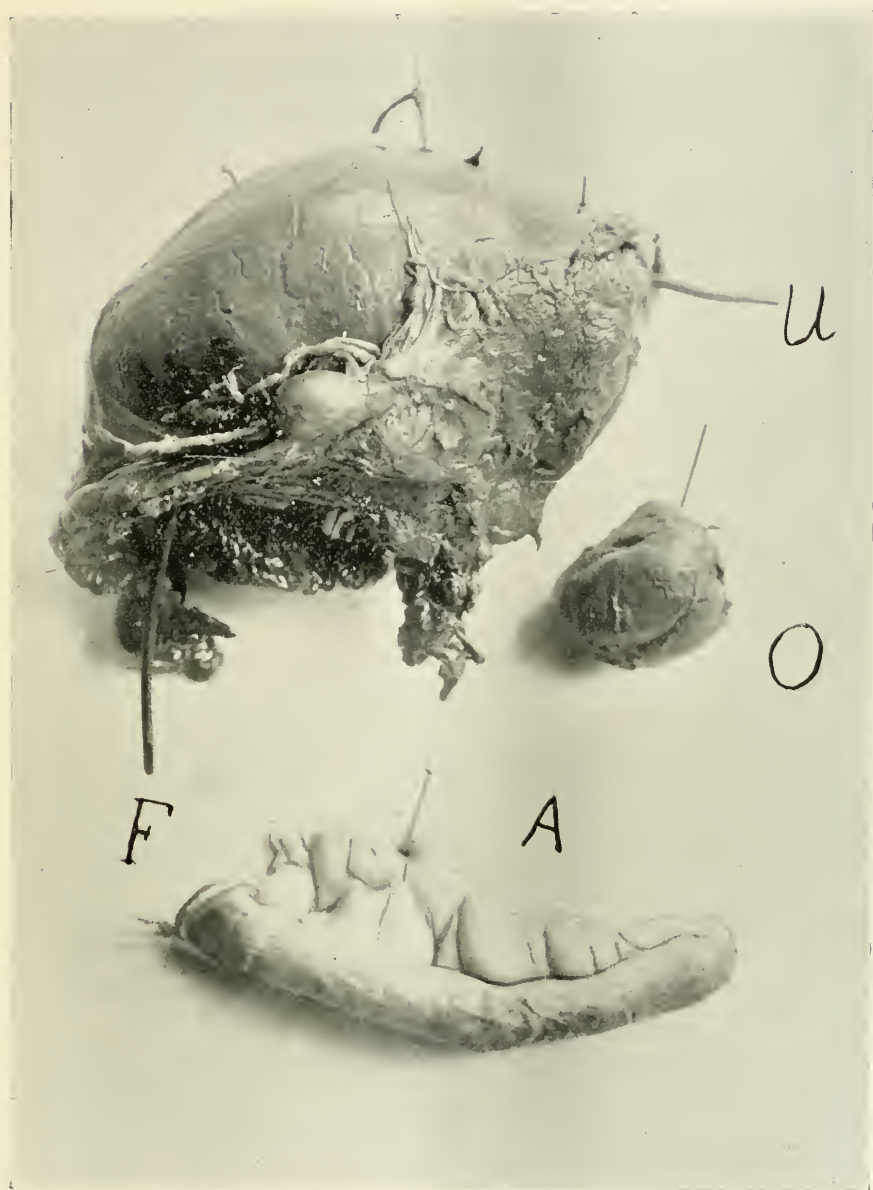


FIG. 3. — From photograph (by Armstrong), full size. *F—U*, Fallopian Tube containing placenta and blood clot; *O*, Ovum which was extruded into the peritoneal cavity; *A*, inflamed Appendix; *U*, Uterine extremity of tube; *F*, Fimbriated extremity of tube through which the ovum was extruded.



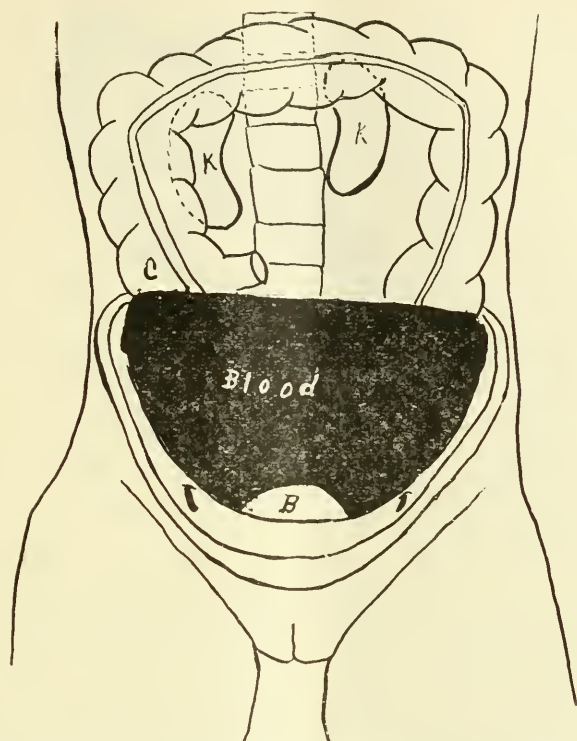


FIG. 4.—Diagrammatic representation of the pelvis filled with blood (anterior view).

tions of the peritoneum were raised, there were additional attacks of pain, and when finally the peritoneum was ruptured, and the ovum escaped into the peritoneal cavity, we had the last intense pain; then hemorrhage continued slowly until the patient had almost bled to death within the abdominal cavity. Still, it is easy to see that a vaginal examination (of a patient lying on her back) would yield negative results.

In a similar case, excepting for the accompanying appendicitis, reported last year by Ferdinand Henrotin, of Chicago, and published in the *Transactions of the American Gynecologi-*

*cal Society*, we see that he was confronted by the same difficulties. He said:

"When I first saw the patient, it was evident from the profound collapse indicated by the total absence of radial pulse and the excessive pallor and death-like coldness of the body that she was suffering from internal hemorrhage; while the dyspnea made it plain that the time for action was short, and that if something was not done immediately, it would be too late. Further physical examination revealed nothing more than local tenderness over the whole abdomen. Sudden pressure would



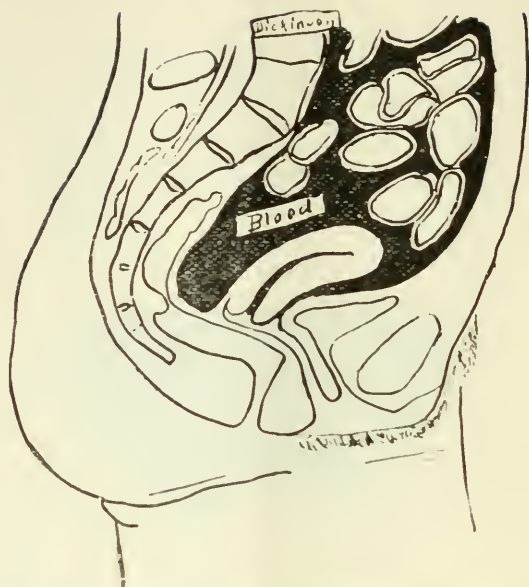


FIG. 5. — Diagrammatic representation of pelvis with blood (side view).

elicit immediate expressions of pain.

"I made a careful and thorough vaginal examination, which was entirely negative. The fact that she was flooding at the time of my arrival, of course, directed my attention to the pelvic organs as the probable source of hemorrhage, and the information obtained from the patient's friends and from herself regarding the previous attacks of pelvic pain, made more than probable the diagnosis of ruptured tubal pregnancy."

It seems almost impossible that this enormous amount of material in the peritoneal cavity could be taken up and disposed of successfully, even though the hemorrhage which was progressing at the time of our operation should have ceased before the patient bled to death.

I have made several charts which illustrate the relative positions of several important abdominal and pelvic organs, and show some of the things in the way of a differential diagnosis in such a case. There was entire lack of any suspicion of pregnancy. There was then a tenderness on the right side with point of great intensity at McBurney's point. There was fever, such as we usually find in appendicitis, and in fact, all the symptoms seemed typical of appendicitis, and undoubtedly many of them were due to the existing inflammation in that region. But the critical condition of the patient was produced by the tubal rupture and continued hemorrhage. Without operation, the patient would soon have died from hemorrhage.

Jacksonville, Ill.

## PUERPERAL SEPTICEMIA: ITS CAUSE AND TREATMENT.\*

J. D. CHASON, M.D.

It has been well said that the best treatment for a disease is its prevention, but despite all our preventive measures that science can bring to bear in our art, we are still called upon to treat Puerperal Septicemia; hence, owing to limit of time, I only enter into the cause and treatment.

Puerperal septicemia is due to a poison, probably produced by microbes. The now well ascertained fact that in almost all cases, by the local use of certain drugs, we can prevent septicemia, and if it has made its appearance, most effectually combat it, shows that this disease is due to a poison which enters the genitals as such, or is produced there by a substance coming in from without. By microscopic examinations of wounds of the genitals caused in the living puerpera is found the peculiar microbe that produces the disease. We also find the microbes circulating in the blood of the living patient, and after death they may be found in almost all of the organs of the great cavities. Most dangerous of them are said to be the round micrococci in chain-like groups. Chains of micrococci are found in the blood of

those suffering from erysipelas, diphtheria, scarlet fever and pyemia. The poison that produces puerperal septicemia may be derived from different sources, such as patients affected with the same disease, patients suffering with suppuration or decomposition of tissue, or patients affected with zymotic diseases, or from putrifying substances.

The contagiousness has been proved beyond a doubt by an enormous amount of evidence. The origin by suppuration was pointed out by Semelweiss in 1847, and in this country the case of Dr. Rutter of Philadelphia, who suffered from ozena, and had 45 cases of puerperal septicemia in his own practice in one year, is one of the most remarkable instances of the kind. Close shaving of beard, close cutting of hair, thorough disinfection and change of apparel would not avert septicemia in his patients; Semelweiss showed how the poison in a number of cases was produced by the infection from the hands of students engaged in autopsies. The emanations from the decaying body of a dead rat were found some years ago to be the cause of a small local epidemic that broke out in the New York infant asylum. In

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the vast majority of cases, the infection occurs by absorption through the wounds of the genital canal.

Depaul describes the case of a pupil midwife in the maternity hospital of Paris, who, while washing the genitals of one of her patients suffering from grave puerperal fever, felt instantly an unpleasant sensation; was taken sick on the same evening, and died on the third day with all the symptoms of the most characteristic puerperal fever. A *post mortem* of this case corroborated the diagnosis, and she was found to be a virgin, and not in a menstrual period. Therefore, a rational inference is that in this case the poison gained access by the absorption through the mucous membrane of the lungs.

The poison is mostly brought into direct contact with the genitals by the hands of doctors, midwives, nurses, instruments, sponges, rags, cotton, oakum, or any other material brought into direct contact with the genitals before, during, or immediately after labor. Unsanitary or unhygienic apartments and surroundings may quite as well communicate the poison to the puerpera that produces infection and oftentimes death.

The patient's clothing, her skin, vagina and surrounding parts may be very uncleanly, which would furnish a source for the infection. Patients suffering from venereal diseases of any kind would be highly subject to infection. Lawson Tait, in his admirable work on gynecology, states

that most puerperal patients who suffer from gonorrhoea in its acute, chronic or latent stage, suffer from puerperal poisoning manifested in some way. In quite a large number of cases it will be found that fragments of membranes or placenta are retained, and especially after abortions.

Retained blood *in utero* causes the trouble in many instances, developing poisonous properties; also the lochia may develop poisonous properties when the temperature is raised from any cause, such as malaria, etc. Therefore, a fair inference is that acute septicemia is caused by absorption of an animal poison evolved from decomposing tissue or lochia.

Whether this evolution is due to micrococci, to chemical or electrical changes, is a secondary matter, except as it influences prevention. If the entrance of micrococci cause the changes, it is logically proper to seal up the vulva with antiseptic dressings and change them only under spray; but if not, we may rely upon common cleanliness.

#### TREATMENT.

I regard a patient with a puerperal septicemia as in a condition strikingly analogous to that of one bitten by a snake. A poison is introduced into the blood that causes minute changes in the tissues and also produces a sharp shock to the nervous system. The patient may be prostrated by the primary depression. If

this can be averted, here, as in snake bite, the patient will recover unless the diffuse changes have involved vital organs too deeply. In puerperal septicemia, we must stop the generation and absorption of poison, and if we can do this, we need not fear the slight damage done by the poison already absorbed, as a rule.

The indications for treatment in acute septicemia are therefore threefold. First, we stop the generation and absorption of the poison. Secondly, we must neutralize the poison already absorbed by free stimulation, and thirdly, we must increase the activity of the excretory organs with a view to the elimination of the poison already absorbed, and to prevent the further absorption.

For a stimulant to protect the nervous system against the shock of poison already absorbed, I use good whiskey or brandy, internally given every one or two hours, just as the emergency of the case in hand demands; also in doses from  $\frac{1}{2}$  to 1 oz., according to the effect produced upon the pulse, temperature, respiration, skin, etc. Patients suffering from genuine acute septic poisoning will tolerate an almost unlimited quantity of stimulants with a beneficial effect, producing rest, lowering temperature and increasing activity of skin. The first attention of the physician should be directed to cleansing the uterus and removing clots, retained fragments of membranes, placenta, or tissue of whatever character that is

acting as a source of infection, and to making the cavity of the uterus antiseptically clean. For the latter purpose, an intra-uterine injection should be administered. A fountain syringe is the best instrument for this purpose, though the ordinary rubber ball syringe will do if the former cannot be obtained. I use a large flexible catheter for this purpose, attached to the nozzle of a syringe by means of a piece of rubber tubing one or two inches in length, and then introduce the flexible catheter into the womb. A finger should be kept at the os uteri to see that there is as ready an exit as entrance for the fluid used as a douche.

When injections are greatly needed, the os will be found quite open as a rule. The solution first used is a gallon of warm water that has been previously boiled. With this the cavity of the uterus should be thoroughly cleansed. Then use  $\frac{1}{2}$  gallon of water, previously boiled, and rendered antiseptic with bichloride of mercury, 1 to 5000, and one drachm of iodoform. I do not use carbolic acid in the douche for intra-uterine injections as a rule, because I regard the use of it as somewhat dangerous, as I have seen some very unpleasant symptoms produced by it after intra-uterine douches.

In the majority of cases the patient is at once made comfortable, the temperature falls, and what is more important, the axe is laid at the root of the disease. The repetition of the



intra-uterine injection depends upon the nature of the case, and the effect produced. If we have reason to suspect decomposing fragments inside the uterus, the intra-uterine injection should be used every 6 hours until all danger has passed. When the poison is due to temporary retention of the lochia, one or two injections will suffice, though vaginal injections should be used several times a day.

Having protected the nervous system against the shock by free stimulation, and prevented further generation and absorption of the poison by injections, we should next endeavor to aid the excretory organs in expelling the poison, and repair the damage already done to the blood.

Calomel 1 gr. and pulv. ipecac  $\frac{1}{2}$  gr. are given every hour for six hours, to be followed by Rochelle salts one hour after last powder in drachm doses and repeated hourly until bowels have moved freely. Dover's powders may be of service if there is any decided pain, as it would allay pain and product activity of the skin. If there is any suspicion of malarial poisoning, quinine dissolved in sulphuric acid should be given freely.

Julia R., multipara, was delivered at 9 A.M. Oct. 6, 1896, after four hours' normal labor. Everything progressed satisfactorily until October 10. Had slight coldness and high fever following, lasting all night. I was called to see her on the 11th and found temp. 102°.2; pulse 108 per minute; lo-

chial discharge suppressed. I gave calomel and quinine freely, and ordered vaginal injections of hot water previously boiled. Symptoms were all much improved on and during the 12th, but at midnight she again suffered with slight chilliness and high fever following. I saw her again on the morning of the 13th in the following condition: temp. 105°, pulse 132 per minute with working of the *alae nasi*. I gave a vaginal douche, then washed out uterus with boiled water and followed with a small quantity of the antiseptic solution as before stated. Temperature immediately rose to 106° F., patient appeared almost frantic. I used morphine, whiskey and phenacetine and later used cold sponging to reduce temperature. I repeated the intra-uterine injections again in six hours with same effect as before, but found no flakes of membranes or shreds in the returning fluid. For the 14th and 15th, I contented myself with vaginal injections. I gave quinine in doses of 10 grs. repeated every 6 hours with brandy given in  $\frac{1}{2}$  oz. doses hourly with an occasional calomel and ipecac tablet which effectually kept the bowels well open. She was sponged occasionally with cold water and a dose of phenacetine given to lower temperature. Fed freely on milk and eggs with broths. Temperature ranged from 103° to 105°.2. On night of the 15th, thinking that there must be generation of poison in the womb with constant

absorption, I again resolved to use the intra-uterine douche with results as before stated with an immediate rise of temperature to  $106^{\circ}$  with quick, weak and feeble pulse, and a condition simulating that of collapse. A number of bottles filled with hot water were used in bed around patient with free stimulation, which soon revived patient again and from this time on through the remainder of her illness I contented myself with vaginal injections alone. Temperature still ranged high until the night of the 17th, but brandy and quinine were pushed as before stated. Skin acted well; patient slept and rested well; appeared very stupid, but on night of 17th, temperature had fallen to  $101^{\circ}$ . Pulse began to slow up and patient's appearance was brighter, so that by the night of the 19th she was entirely clear of fever. This case I regard as one produced by malaria. This patient lived in a locality infected with malaria and had had previous attacks of fever and biliousness. Garrigues recommends after the intra-uterine douche a suppository put high up into the cavity of the uterus with long dressing forceps bent like the intra-uterine glass tube through a Cascoe's speculum.

Iodoform	5 dr.
Amyli	$\frac{1}{2}$ dr.
Glycerine	$\frac{1}{2}$ oz.
Acacia	1 dr.

Mix to a paste. Divide into three suppositories, size and shape of little finger.

With this suppository I've no real experience, but am very favorably impressed, for as before stated, I use iodoform in my antiseptic solution as a final douche. In many cases we will find pain, sensitiveness, with swelling in one of the broad ligaments (parametritis). In such cases an ice bag applied over affected parts with iodine painted over lower portion of abdomen with all the foregoing treatment as indicated with the particular case in hand, will end the inflammation in a few days as a rule. As the uterus usually remains large in such cases, I give 20 minims of fluid-extract of ergot three times a day to promote involution of the uterus. It should be used for a number of days. The external genitals should be kept scrupulously clean, using the antiseptic and disinfectant carbolic acid in boiled water for this purpose with a constant change of apparel. If headache be severe, use ice to head, and if fever runs high, sponge entire surface with ice water. I use morphine hypodermatically when there is much local pain. The foregoing is my treatment in general except in cases as reported, where the temperature, far from reducing, rises when an intra-uterine douche is used; but if it actually increases, then I rely upon vaginal injections and general treatment. I do not use the coal tar preparations much in this disease, and when I do use them, I guard them well with stimulants, because septicemia is a disease that rapidly ex-

hausts the patient, and the coal tar preparations only add fuel to the flames. They disguise symptoms, lower the vitality and allow the disease to make further inroads upon the system. I prefer phenacetine to any of the group. I use stimulants in

some cases almost without limit. Early vigorous and conservative treatment is demanded. Tonics, of course, are required for the restoration of the general health when acute symptoms have ended.

Iron City, Georgia.

## EMBRYONIC MISCARRIAGE.

J. R. DODGE, M.D.

IN selecting this topic for my paper, it is not because I have anything new or startling to present, nor because I have had more than ordinary success in the management of cases of this kind; it is merely with a desire to provoke a discussion of a subject which I fear does not receive the attention it merits, and is not as well understood as it should be by the average practitioner.

The tendency of the medical profession at this time is toward the new and sensational, and any paper read before a body of this kind which does not recognize this fact and follow along in this line is in danger of being regarded as unorthodox. This craze, which has gone to a dangerous extent, was openly rebuked by the American Medical Association at its last meeting at Atlanta, and in the language of Dr. Senn of Chicago, now president of the society, "the time has come to call a halt." This protest was embodied in the opening

address of Dr. Beverly Cole of California, and supplemented by a resolution offered by Dr. Maclean of Detroit and unanimously adopted by the association. I had the honor as well as pleasure of attending this meeting, and I know that the sentiment of the members present was that of more conservatism in the practice of the healing art. Being imbued with this feeling, I feel emboldened in bringing forward at this time a matter for your consideration, though plain and every-day in its occurrence, yet one of considerable importance, for there is nothing within the daily routine of our practice that creates so much consternation in the heart of the young practitioner, and oftentimes so much perplexity even to the older and more experienced, as an alarming case of hemorrhage associated with miscarriage. The patient is usually more or less exhausted from great losses of blood before the physician is called in; in fact, the doctor is not called at

all until the friends have become thoroughly alarmed; he is expected to act, and that promptly, for the relief of his patient, and all eyes are upon him; if he wavers or hesitates it is quickly observed, and confidence—that jewel which every conscientious physician covets—is weakened or lost. On the other hand, if the doctor is fully equipped for any emergency and has confidence in his own resources and his ability to act is clearly demonstrated, he will save his patient from further exhaustion and place himself not only in the position of mastery, but in one of security so far as his own reputation is concerned.

Miscarriage applies to those cases where the uterine product is thrown off before viability; this period in law is fixed at six months, but as a matter of fact it is somewhat longer, seven months being about the average. There seems to be three clearly defined stages of miscarriage prior to the seventh month, each marked by characteristics peculiar to that period of gestation. These periods have been recognized by a number of modern writers and are named in their order as follows: First, ovular, ending with the first month; second, embryonic, ending with the third; and third, fetal, including the remaining period of gestation down to the stage of viability. Ovular miscarriage is, as a rule, of slight consequence, and attended with no symptoms of special alarm, rarely disqualifying the patient for

her ordinary duties. I can recall no case during my twenty-five years' experience where active interference was called for, or where injurious symptoms, either inflammatory or otherwise, developed. The embryo during this period is without definite form, and when removed from its amniotic enclosure is almost microscopic in size. As a rule this ovum is thrown off during the menstrual epoch, and aside from a somewhat unusual flow and increased pain, might pass unnoticed and even unknown.

Embryonic miscarriage, with which this paper has especially to do, is a different affair entirely, either from the preceding period or the one following. It is the period of greatest danger to the patient, and the one that oftentimes puts the practitioner at his wits' end. It would be better, in my opinion, to extend this period so as to include the whole of the fourth month, for not until after that point of gestation do the peculiarities which mark the third or fetal stage of miscarriage really begin to exist.

Fetal miscarriage in the language of Dr. Charpentier "is a labor in miniature, with placenta fully formed and the ovum definite in structure." As miscarriage at this point of pregnancy has the characteristics of labor at term, it requires no special treatment. Any physician who has had extensive experience in the management of miscarriages and has been observant, must have been impressed by the regularity with which these peculiarities



occur during the periods of gestation, oftentimes requiring a wise discrimination in their treatment.

The period of greatest frequency of abortion is undoubtedly between the second and fourth months. In my own practice, the great majority has occurred at or during the third month. I think that about four or or five have occurred at this point.

Jaquemier, on the other hand, declares with Madame La Chapelle, that the sixth month is as critical a period as the earlier months of pregnancy. I have not been able to verify this in my practice at least.

The apparent reason for the earlier miscarriages is accounted for by the fact that prior to the third month the placenta is quite undeveloped and its uterine adhesions comparatively slight, extravasations occurring from mechanical causes, and the periodic congestions that recur quite regularly during the early months disturb more or less the fixity of the ovum, and it is quite liable to premature expulsion. Hereditary influence is often an exciting factor, and quite a percentage of miscarriages are due to this circumstance alone, notably the syphilitic taint on the part of either parent. Rhachitis and serofulosis are potent causes and lead frequently to an early arrest of development. Women with profuse monthly flows are prone to miscarry during the periodic effort, and women nearing the close of menstrual activity are exceedingly liable

to miscarry at about the third month, and it is this class of cases, as a rule, that furnish the most abundant hemorrhages and cause us the most trouble, as the uterus at this time of life is flaccid and far less disposed to contract. In all the realm of nature, nowhere does habit assert itself more regularly and persistently than in the matter of miscarriage. A woman who has aborted once from whatever cause is quite likely to do so again at the same period in subsequent gestations. I have by enjoining absolute quiet in the recumbent position continued from the close of the first to the middle of the fourth month, succeeded in carrying quite a number over the critical period and thereafter the habits seemed to be broken. I now recall one case in particular where the patient aborted regularly at the third month for three consecutive times. The fourth time she was carried over the danger period by absolute rest in the recumbent position beginning with the second month and continued to the close of the fifth. My books show that since that time I have delivered her of six living children, all at full term. The direct and mechanical causes of miscarriages are omitted as not deemed proper to discuss at this time.

When summoned to the bedside of a pregnant woman suffering from pains about the back and loins, attended with hemorrhage, the opinion is apt to be unqualified that the patient is suffering a miscarriage. A

little caution here is sometimes a good thing, for cases of this kind frequently rally and go on to term. I can attest the truth of this in numerous instances, and in several to my chagrin.

Dr. Bedford says: "I have known women to lose immense quantities of blood in a threatened abortion and to be apparently moribund from exsanguination, and yet they have rallied and gone on to full term." A case of this kind occurred in my practice last summer.

Mrs. B., at the third and a half month, was attacked with recurrent pains, attended with profuse hemorrhage; the pains seemed to increase in their expulsive effect and a great quantity of clots were thrown off. This stage of things continued for several hours, and I informed the husband that nothing would prevent a miscarriage. I was about to apply a tampon when, to my surprise, the pains and hemorrhage suddenly ceased. This case went to full term, and I delivered her of a puny child weighing three pounds. The child is still living, but very small and develops slowly. This was the woman referred to in another part of this paper as having aborted three consecutive times. Instances of this kind occur in the practice of all physicians, and should teach us that unless the ovum is actually extruding from the dilated uterus, under the influence of regular labor pains, we should not be too positive in our prognosis, nor refrain from using every known means to quiet

our patient and carry her on to the conclusion of pregnancy. The doctrine would seem to be that while pain and hemorrhage are the usual attendants or precursors of miscarriage, they are not by any means necessarily so. Many women menstruate regularly every month, attended with more or less paroxysmal pains during the whole course of their gestation, and yet reach the end safely, so far as mother and child are concerned.

Having exhausted all the resources at our command, in our efforts to arrest the threatening symptoms, and it being a foregone conclusion that a miscarriage is certain, our plain duty now is to relieve our patient as quickly as possible consistent with safety; and it is to the management of these cases that I desire especially to call your attention, and earnestly ask your wise consideration. I have before stated that the embryonic cases are, as a rule, the ones that give us most concern and the ones of greatest danger to the patient. At the latter part of this period when miscarriage is most likely to occur, the ovum is quite firmly anchored to the mucous membrane of the uterus, which in turn has sent solid epithelial prolongations between the villi of the chorion, thus intimately attaching the ovum to the uterine walls. At this time the afterbirth is well along in its formation, and may be said to form almost a constituent part of the uterus itself. The decidua, which is a uterine product, parts from its at-

tachments with difficulty, a process sometimes most provokingly and tediously slow. During this separation the hemorrhage, usually intermitting in character, keeps up a constant drain, and unless controlled, small pulse, cold extremities and syncope supervene, thus declaring the dangerous extent to which the process has gone. This condition of things, with no immediate prospect of the expulsion of the ovum, may continue until the patient is actually moribund. It is not well to delay interference until this exhausted state of the system declares itself; indeed it is positively dangerous to do so. Sometimes we find this condition of things when we arrive upon the scene. To content ourselves with treating such cases expectantly and trusting too much to nature is a criminal neglect of duty. During the first years of my practice I am frank to admit, I was too much inclined to treat my abortion cases in that manner. Inexperience and an indescribable sense of fear are my only defense, and here is the proper place to make "open confession."

For the last ten or fifteen years I have pursued a very different line of treatment, and I have rarely had any trouble from losses of blood, either during the expulsion of the fetus or the separation and removal of the placenta. I have come to look upon the tampon as the thing, and the only reliable method of arresting and controlling hemorrhage in miscarriage where the os uteri is undilated. The

writers usually place the tampon second or third in the list of important agents to be relied upon in controlling these hemorrhages; but were I to write a treatise upon this subject for the guidance of those less experienced than myself, I should place the tampon emphatically first and use all other means as of secondary importance.

I am quite sure that I have in numerous instances produced incarceration of the ovum by the indiscriminate use of that much relied upon but often abused drug, *secale cornutum*; that it is invaluable in conditions indicating its use cannot be denied, but to use it empirically should be condemned, for it is liable to produce tetanic retraction of muscular fibre, thus locking up the uterine contents within an unyielding and rigid os. Every physician has encountered this condition of things, but was hardly willing to admit it even to himself that his indiscriminate use of ergot was to be blamed for all the mischief. We have no such fears in the use of the tampon; it is a measure sure and safe, and will rarely disappoint if properly applied. It is of no use to apply a tampon for the relief of hemorrhage unless it is scientifically done; anything short of this will end in failure and disappointment.

An ordinary bivalve speculum will answer every purpose; some prefer Sims's and the lateral position. In placing the tampon much care should be exercised in laying the foundation.

The lint or cotton should be firmly packed around the cervix including the posterior cul-de-sac, and pledget after pledget should be laid on until the vagina is firmly and solidly filled. After removing the speculum, several large pledgets of cotton placed over the external end and firmly held in position by a T-bandage secured by a strap around the body above the hips, will complete the operation. Whatever is used in the formation of the tampon, whether it be cotton batting, lint or strips of cloth, should be aseptic as far as possible, and the pledgets should be secured to a string, the end left protruding for its better removal. If this is done, as above described, there need be no fear of further bleeding, and as a rule you need pay no further attention to the case for six or eight hours, when it will be time to remove the tampon, and, if needed, replace by a new one. Every physician knows that pressure thus exerted upon the os uteri causes relaxation and brings on expulsive pains. When the tampon is removed, as a rule the ovum will be either found in the vagina or extruding from the dilated os. The tampon may be removed sooner than the time above named if by cessation of pains

it is evident the uterine contents have been expelled. There need be no fear of internal hemorrhage in embryonic miscarriage, for the uterine cavity is quickly filled and further oozing an impossibility. If the fetus has been expelled and the afterbirth still retained and not easily reached, the tampon may be replaced for a time.

In my opinion, no physician should consider his patient safe and his work fully accomplished until he has secured the removal of the secundines in any case of miscarriage which has advanced beyond the second month of pregnancy. If it should happen in any case that the tampon fails to produce the desired dilatation, other means for producing this result must be resorted to. The following from Dr. Bedford, in my opinion, is entirely at variance with facts. He says: "It is a curious and interesting fact that the retained placenta in cases of abortion does not, as at the full period of gestation, undergo decomposition, and therefore if it cannot be readily secured should cause no disquietude." Any one who follows this advice will find himself, every now and then, dealing with septicemia.

Hudson, Michigan.



## PUERPERAL ECLAMPSIA: REPORT OF EIGHT CASES.

WILLIAM H. JOHNSTON.

It is not my intention to enter into a discussion of the etiology, pathology or prophylactic treatment of puerperal eclampsia, but simply to report briefly eight cases which have occurred in my practice, and to make a few remarks upon the treatment of such cases.

Case 1 was a multipara, aged 41 years, with a history of kidney disease and a so-called attack of the legs of several years' standing. Her labor was of short duration and was attended by any complication. She had been under my care for about 1 month for albuminuria and dropsy, but I was so pleased that no convulsions occurred during the labor that I paid no attention to the severe headache which the patient complained of at its termination. As it was my first case of confinement, fifteen years ago, and the second one I had ever seen, perhaps my stupority was somewhat excusable. Three hours later I found her in the third convulsion. The treatment consisted in the administration of chloroform, morphia, laudanum and digitalis. She had but one convulsion after my arrival, but this is no strange when it is considered that she received one grain of morphia hypodermically, thirty grains

of bromide and twenty grains of chloral within the space of one-half hour. She did not regain consciousness and died in thirty-six hours. The infant survived.

Case 2 was a vigorous primipara, 18 years of age, in the ninth month of pregnancy. She began having spasms at 6 a. m. and was unconscious at 8 p. m., when I first saw her. I gave her bromide and chloral every two hours and several doses of compound jalap powder which produced several watery stools before morning. She also received pilocarpine hypodermically and was wrapped up in hot wet sheets every fifteen minutes until free perspiration was evinced. Towards morning her condition improved, and I inserted a catheter between the uterus and membranes to induce labor. On returning at noon I found her general condition about the same. Uterine contractions had begun, so I ruptured the membranes, and at 5 o'clock delivered a dead child with forceps. Soon after this she regained consciousness sufficiently to speak when addressed, but her improvement was temporary, and she died in forty-eight hours. Had I treated this woman surgically instead of medically, and delivered her soon after I first saw her,

I have no doubt her life could have been saved.

CASE 3 was also a primipara, aged 18 years, who began having convulsions at 2 A. M., and was unconscious at 11.15 A. M., when I was called to see her. I gave her one-half grain of morphia hypodermically, and as she was very stout and plethoric, removed eight ounces of blood from the median cephalic vein. At 11.25 she had another spasm. At 11.30 I injected three ounces each of chloral and bromide into the rectum and wrapped her in sheets to excite perspiration. At 12.20 she had another spasm. At 2.30 I repeated the enema of chloral and potassium bromide, and the os being partly dilated, ruptured the membranes and extracted the child, dead, with forceps. This patient was so insensible that she did not notice the operation, and died at 4 o'clock. This case was hopeless when I first saw her.

CASE 4 was a primipara, aged 18 years, in the ninth month. She awoke at 2 o'clock at night with a violent headache, which increased in severity until 3 P. M., when I was called. Her face and extremities were much bloated, and while talking to me she was seized with a convulsion. Upon regaining consciousness at 3.10 she was given thirty grains each of chloral and bromide of potash and one-eighth grain of elaterium. At 4.10 I repeated the chloral and bromide, and at 4.40 gave her one-eighth grain pilocarpine hypodermically, and a hot

air bath, which measures were followed by profuse perspiration. Her head now felt much better. I ordered a continuance of the chloral and bromide every three or four hours and also several one-half grain powders of calomel. The next morning she was quite comfortable. Her bowels had moved twice and her headache had disappeared. She was directed to drink freely of cream of tartar lemonade, to take enough compound jalap powder to procure one or two fluid evacuations a day, and to take digitalis until the amount of urine passed in twenty-four hours approached the normal. At the end of a week I attended her in labor, which was normal in every respect. The baby was well developed and healthy. Convalescence was uninterrupted.

CASE 5 was a multipara, aged twenty years. She had been in labor several hours, and had one convulsion a few minutes before I saw her. I put her under chloroform, and as the child's head was low and the os well dilated I ruptured the membranes. As the pain continued strong, forceps were not resorted to, and a healthy baby was soon born, the mother being kept slightly under the influence of the anæsthetic. The puerperium was uneventful.

CASE 6 was a multipara, aged 28 years. Labor began at six A. M., soon after which I was called. At 8.20 the baby was born without any complication. At half past twelve, without any premonitory symptoms, she was

seized with convulsions and was unconscious when I arrived on the scene at one o'clock. I gave the patient 1-3 grain of morphia hypodermically, and as she was a very plethoric woman and had lost but little blood during labor, I thought venesection was indicated and called Dr. Lupinsky to assist me. I then put the patient under chloroform while the doctor opened the median cephalic vein and removed one pint of blood. The patient recovered consciousness the following morning and made a rapid recovery, my last call being made on the fourth day.

CASE 7 was a primipara, aged 24 years, seen in consultation with Dr. Marvin. She had been in labor several hours and had one convulsion a few minutes before I saw her. We gave her one-fourth grain of morphia hypodermically, which was followed in ten minutes by another spasm. We then put her under chloroform and on internal examination found that the child's head had passed the pelvic inlet. The sagittal suture was in the right oblique diameter with the small fontanelle to the front. The cervix was dilated to the size of the palm of the hand. I therefore ruptured the membranes and with some difficulty delivered the child with forceps. It was deeply asphyxiated and was resuscitated only after several minutes' use of hot and cold baths and artificial respiration. It remained quite feeble and died on the eighth day. The mother made a rapid recovery.

CASE 8 was a multipara, aged 24 years, whom I saw in consultation with Dr. Penwarden. She had her first convulsion at one o'clock in the afternoon, and another fifteen or twenty minutes later, after which she remained unconscious until after delivery. We gave her one-fourth grain of morphia hypodermically, and at three o'clock put her under the influence of chloroform; pulse 100; temperature not taken. External examination showed that the fundus was midway between the umbilicus and the pit of the stomach; the child's back was to the right, small parts to the left and forwards; head movable over the pelvic inlet; fetal heart beat midway between the umbilicus and anterior superior spine of the ilium and 140 to the minute.

After careful cleansing and disinfection of our hands and the external genitals of the patient, she was examined internally for the first time. The vagina was wide, mucous membrane smooth, cervix high and open to the finger, water not escaped, head movable above the pelvic brim, sagittal suture almost transverse, small fontanelle to the right and somewhat posterior, large fontanelle not felt. Diagnosis: End of ninth month of pregnancy, right occipito-posterior position, labor not yet begun. The patient's husband stated that she was expecting labor to set in at any time. It was decided that her interests demanded immediate delivery and that the only way to accomplish this with



safety to the mother was by performing craniotomy. After sterilizing the instruments by boiling them fifteen minutes in soda solution, the vulva was shaved and the external genitals and surrounding parts again washed and disinfected. Great care was taken that no water entered the vagina, and no vaginal douche of any kind was used. While the head of the child was firmly pressed against the pelvic brim through the abdominal walls by Dr. Penwarden, I passed the perforator through the posterior fontanelle and moved it about freely to break up and remove the brain mass as thoroughly as possible, and thus allow of complete collapse of the cranial wall. The smaller blade of Braun's cranioclast was then introduced into the perforated skull and the larger placed over the occiput. To avoid lacerating the cervix an incision was made into it with scissors, extending about half way to the vaginal junction. The head was then slowly and without much difficulty extracted. The placenta was expressed in about twenty minutes and two syringefuls of ergot given hypodermically. The uterus contracted well and no hemorrhage followed the operation. The cervical canal and vaginal vault were irrigated with a small amount of water to remove a little loose brain substance, but nothing else in the nature of a vaginal douche was used at any time. The after treatment of the case was conducted by Dr. Penwarden, and consisted mainly

in the use of salts and chloral. The patient made an uninterrupted recovery. The lochia were normal in amount and free from odor. The highest temperature was 100°. This was reached on the third or fourth day when the patient was troubled some with mammary turgescence. The evening temperature did not exceed 99° at any time.

Puerperal eclampsia is a dangerous disease, whose mortality is variously estimated at from twenty to forty per cent for the mothers and from fifty to seventy-seven per cent for the children. The prognosis is worse in multiparæ than in primiparæ, and is most unfavorable when the convulsions occur in the last month of pregnancy before the onset of labor. Some of these cases die undelivered. In the great majority of cases, however, the convulsions begin during labor, and the earlier they occur the worse the prognosis. The statistics of Lohlein show that of eighty-three cases in which the first spasm occurred before or during the first stage of labor, forty and one-half per cent died. Of fifteen cases where the first stage was completed before the onset of convulsions, only one died. Eclampsia, which develops first in childbed, usually runs a favorable course.

When these facts are considered, and also that after operative emptying of the uterus under deep narcosis, the convulsions cease in ninety-three per cent of the cases, I am warranted in asserting that, as a rule, the princi-



pal indication in puerperal eclampsia is to deliver the woman. If this can be done with safety to the child, well and good. If not, for the sake of the mother, we are justified in utterly disregarding the child the same as we do in placenta previa.

One must not, of course, follow this rule blindly, as some infants would thereby be needlessly sacrificed. One must individualize to a certain extent. The heart of the woman is the best index of her condition. If the pulse is but seventy or eighty, and the patient conscious between the spasms, the case may often be conducted to a favorable termination with the aid of chloroform, morphia, chloral, etc., as was done in my fourth case. With a pulse of 100, active treatment is necessary. Do not put off the delivery for hour after hour and waste time with anodynes, but proceed to deliver the woman as soon as possible. When the pulse is 120 to 140, the prognosis is bad, whatever the treatment. The indications, therefore, in a case of puerperal eclampsia are:

(1) To deliver the woman as speedily as possible. The obstetrician must be the judge of the particular procedure to employ in a given case. Barnes' bags, the colypeurynter, manual dilatation of the cervix, Dührssen's multiple incisions, forceps, version, perforation and Cæsarean section have each their sphere of usefulness. Symphysiotomy is not to be thought of in any case. Personally I

do not believe it would be right to subject a young or middle-aged eclamptic with a normal pelvis to the dangers of a Cæsarean section, as, with good health, she would probably soon again become pregnant, when, with or without suitable prophylactic treatment, the convulsions would not be likely to recur. Kaltenbach, however, believes that Cæsarean section, early in eclampsia, is preferable to the forcible extraction of a child after deep incisions through the cervix and vaginal vault.

(2) To suppress the attacks with chloroform, give large doses of morphia hypodermically or chloral by the rectum. Zweifel gave chloroform continuously for twelve hours in one case which terminated in recovery. To get the best results from chloroform, it should be given until delivery is accomplished or the child is dead. In the latter case, with an imperfectly dilated os, craniotomy should be performed. Leopold and others object to the employment of chloroform in eclampsia on the ground that it adds to the blood intoxication already present, and leads to acute fatty degeneration of the heart. On account of this depressing effect upon the circulation, Zweifel uses ether. Veit has given as much as thirty grains of morphia subcutaneously within seven hours in a successful case; and Winkel has used one-half ounce of chloral *per rectum* within twenty-four hours. But these drugs must be used very carefully.

Kaltenbach has seen one and one-fifth grains of morphia distributed over six hours produce symptoms of narcotic poisoning, nor was a fatal termination of the case averted.

(3) Stimulating the skin to activity by warm baths of  $100^{\circ}$  to  $110^{\circ}$  of twenty minutes' duration, and the bowels by drastic cathartics as compound, jalap powder or elaterium.

I wish to call attention, in closing, to the great necessity of asepticism in treating puerperal eclampsia. These cases are particularly prone to septic infection on account of the larger number of internal examinations usually made to determine the progress of the birth, and because of the

severe lacerations which often follow the accouchment force used to hasten delivery.

No internal examination should be made before disinfecting thoroughly the external genitals of the woman and the hands of the obstetrician, and no vaginal douches of any kind should be used. The vaginal secretion of a pregnant woman is a powerful antiseptic and disinfective agent. The employment of antiseptic vaginal injections, before or during labor, with a view of sterilizing the vagina, is not only useless but positively harmful.

Grand Rapids, Michigan.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### SCARLET FEVER.\*

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SCARLET fever is an acute, contagious-infectious exanthematic disease, characterized by short incubative and prodromal stages, erythematous eruption, desquamation, and as to length it runs a varied course.

To the physician it is the most important of all the exanthemata, in that it occurs most frequently in early life, and is not preventable by inoculation. Thus far investigation has not discovered the micro-organism giving rise to it. Its complications are so serious, and the sequelae so important it is essential that the attending physician make an early diagnosis, establish a strict quarantine to protect the children of the community, and inaugurate prompt and efficient treatment to lessen disastrous results.

It prevails as an epidemic, and as sporadic and endemic with a varying virulence in different individuals. A

mild case may give rise to a malignant one, and an individual infected from a malignant case not being susceptible to the scarlatinous contagium may have the disease in a very mild form. This disease does not spread rapidly like measles owing, probably, to the fact that the contagium resides in the epidermal scales which are cast off during the period of desquamation. In measles the contagium is most active during the feverish stage. The scarlatina germ when once lodged in clothing, letters, books, playthings, etc., is so tenacious of them that an outbreak of the disease may occur months after all other cases have ended. It has not been clearly proved that the domestic animals, such as dogs, cats, etc., ever have the disease, yet it is certain that these animals may transmit the infection to the children with whom they play. Children of all ages are liable to this disorder, but it is rare that infants nursing, or those under

\* Read before the eighth annual meeting of the Tri-State Medical Society of Georgia, Alabama, and Tennessee, held at Chattanooga.

twelve months of age ever take the malady. I recall a case wherein the mother attended one of her children sick with scarlet fever through to convalescence, and at the same time was nursing a babe 14 months old. The mother herself had a hybrid form of the fever in that she had sore throat, enlarged lymphatic glands of the neck and a peculiar eruption that assumed the lamellar form in desquamation. But the babe never seemed the least affected by the condition.

The best protection for a community against the spread of the disease is a rigorous enforcement of isolation. Protecting children until they are 12 years of age is to prevent the greatest number of them from ever having to endure the ravages of this disease, or its unfortunate results. After that time they are comparatively free from the incursion of the germ. To protect the little babe which has not learned to talk is to lessen the number of deaf mutes in the State, since the disease might produce a destruction of the hearing, and thus forever make possible its inability to make sounds. So we owe it to the succeeding generations to prevent the dissemination of scarlet fever among the children.

Primarily, the pathology is shown in the skin and throat. The chief complications are connected with the ear, cervical glands and the kidneys; the most common of which is nephritis. In other organs, however, lesions are produced by the fever, and septic processes may manifest themselves in

the pleura, pericardium, endocardium, the meninges, etc. Macroscopically the skin in efflorescence is intensely erythematous, with here and there a minute spot of darker red than is found in hyperemia. Microscopically the pathological process is represented by exudative cells closely packed together reaching up to the horny layer of the skin. These cells occasionally take the place of the epidermal cells, being thickly crowded between the excretory ducts and skin follicles.

This condition makes the contagium active until desquamation ceases, thus making the study of the skin interesting and important as touching efflorescence, and a continued possibility of infection. The eruption is to be seen quite as early on the hard and soft palate as on the skin, while we look for its first appearance on the front of the neck and upper part of the chest, yet in my experience with scarlet fever I am led to believe that the eruption manifests itself in the mouth simultaneously if not a little sooner than on the skin. The throat at first may show simply a catarrhal, or, on the other hand, a severe inflammatory lesion affecting larynx, pharynx and tonsils. The throat is in such an enfeebled state that it readily furnishes a fertile field for inroads of other pathogenic germs. The exudative inflammatory condition commonly seen is thought to be produced by a microbe very similar in form and in cell life to the streptococcus pyogenes, yet an entirely different organ-



ism. The submucous tissue may become highly congested, œdematous and even be the seat of suppurative inflammation. While the throat lesion may run a simple course not producing a septicæmic condition, yet the germ having access to the blood may produce pyæmia as a result. Though the pseudo-membranous condition resembles both in its local and general phenomena that of diphtheria, with which it has often been confounded, yet the consensus of opinion is to the end that scarlatina is a distinct disease. Investigation after investigation in cases of fatal pseudo-membranous angina and cases not fatal, has failed to find the Klebs-Loeffler bacillus, proof positive of diphtheria. In a few cases the staphylococcus aureus was found present, but in no way seemed to influence the disease. The streptococcus largely predominated and undoubtedly formed the pseudo-membrane so often complicating scarlet fever. It is thus that the membrane may involve the naso-pharynx, Eustachian tube, and secondarily the ear. The cervical lymphatics receive their poison from the throat, and in some cases the destructive process in these glands is very great.

The kidney in scarlet fever is not an uncommon seat for lesion, complicating the course and symptoms of the disease. It is thought that the nephritis, whether it be a simple degenerative epithelial process or involving greater changes in the tissues of these organs is produced by the absorption

of ptomaines, or of some soluble poison produced by the scarlet fever agent. In the more simple form of kidney disturbance there need be no marked degenerative changes nor even inflammation, but the class involving much tissue change shows accumulation of cells between the tubules in the interstitial tissue, or masses of cells closely packed together within the capsule and between the glomerular capillaries and the capsule. This latter condition is the one commonly found in scarlet fever, and on account of the cellular masses being present, the circulation of the kidney itself is not only impaired, but in a great measure, its function is destroyed and great damage results.

The period of incubation is irregular, ranging from four to nine days in length. The onset is usually sudden and severe, with headache, high fever, sore throat, restlessness, nausea, and in many instances continuous vomiting. A high initial fever indicates a severe attack. At the end of the prodromal stage, which usually lasts from twenty-four to sixty hours, an efflorescence appears on the skin and mucous membrane of the hard palate. The order of its appearance is characteristic of the disease. It puts forth its first appearance on the front of the neck and upper part of the chest, rapidly spreading upward and downward over the entire body. In erythema, from which scarlet fever must be differentiated, the efflorescence, whether arising from drugs, or

in the course of some disease, appears over the whole body at once. The eruption of measles is first observed on the sides of the neck and face, and extends downward.

The efflorescence remains at its height for about three days, then slowly fades away. About the seventh day desquamation begins and lasts from ten days to three weeks. This process, sometimes, after apparently ceasing for several days, may begin again, and the skin scale off as before, thus prolonging the period of recovery.

The prognosis in a mild attack of this fever is almost always favorable. Death ensues so rarely that physicians have learned to look upon the complications and sequelæ rather than the initial disease as the prime cause of dissolution. The complications then should receive the closest attention in treatment, for it is they that give rise to alarm. If the pseudo-membrane in the throat extends down into the larynx, producing complete angina the case becomes serious. If the soluble poison attacks the tissues of the kidneys so as to produce uremia, diabetes, etc., to be in time followed by dropsy of the heart, pleura, abdomen, or general anasarca, the outlook for the patient's recovery is gloomy. If again the scarlet fever contagium should attack a patient who is susceptible to its ravaging influences, and in whom the extreme virulence of the agent should show itself, the prognosis again is grave.

Another feature to be observed in scarlet fever is the number of variations that may be shown even in the mild form. The temperature, for example, may continue some days after the eruption has faded. But it should be observed that when the fever has once subsided and then suddenly rises again, a just suspicion may be raised that there is a new focus of inflammation somewhere. This may have its location in the ear, the cervical glands, the tonsils or the heart. So also variations may be noted in the manifestation of the efflorescence; in the varied form of desquamation; in the absence of any severe throat trouble, etc. It is so rare for a simple case of benign scarlet fever to end fatally that were it not for the complications that arise, physicians would be no more concerned about it than a case of simple erythema resulting from digestive disturbances. In the throat complications sometimes the pseudo-membrane simulates the diphtheritic membrane so closely that nothing but a bacteriological examination will decide the difference. In the one there is the predominance of a streptococcus, while in the other, the Klebs-Loeffler bacillus is always present. The streptococcus engrafting itself upon the highly congested membrane of the throat, produces an exudative condition that complicates quite seriously the attack, especially so when the ear, the neck glands or the larynx become involved. In a recent case of my own in a child four years old, the

pseudo-membrane not only covered the posterior pharynx, tonsils and uvula, but it crawled up into the nasopharynx out to the anterior nares, occluding them for three days. In this case as a sequel arising from throat complications, otitis media followed. The tympanum was perforated and the pus escaped by way of external meatus. In the midst of other severe symptoms the inflammation in the ear was not noticed until pus began to escape. The child made no complaint of pain in the head, and did not show signs of restlessness or special involvement of the brain to draw our attention earlier to the ear lesion.

The treatment of uncomplicated cases of scarlatina is simple, for the disease is a self-limited one. The treatment mainly lies in making the patient comfortable by reducing the temperature when it becomes high with tepid water spongings, or a small dose of some antipyretic; or quieting the restlessness by proper doses of bromide of sodium, or giving plenty of cool water to quench the thirst and allay the throat irritation, keeping the bowels open by suitable doses of sol. citrate of potassium, and the kidneys active by proper doses of acetate potash or cream tartar lemonade.

Ordinarily this simple treatment is all that is necessary. It is when the complications arise that all the skill and the good judgment of the physician are required to guide the frail bark through the storm to a place of

safety. About as good a local treatment for the pseudo-membrane as any is the use of peroxide of hydrogen in full strength whether by spraying, or swab, or gargle. For constitutional treatment iron, quinine and brandy are favorably spoken of. For otitis drain pus by means of absorbent cotton wicks; syringe the ear gently with one-fourth strength of peroxide of hydrogen in tepid water, or with a weak solution of bicarbonate of soda. The treatment of scarlatinal nephritis requires prompt action and good judgment. It is best not to irritate the kidney by giving harsh diuretics, but use the safer ones, such as acetate of potash, or bitartrate of potash; but when œdema and uremia threaten, give cathartics rather than diaphoretics and diuretics. Podophyllin in one-tenth grain doses and compound jalap powder are excellent cathartics. As supplementary treatment, use the hot pack either wet or dry. To open the skin freely, use muriate of pilocarpine either by mouth or hypodermic syringe. When convulsions threaten, liberally use hydrate of chloral and bromide of potash by enema. Also it is well to give the infusion of digitalis, especially when the cardiac changes indicate it; for this remedy, by its action on the heart, tends to increase the flow of urine and thus relieves any ascitic condition that might be present. Diuretin in five grain doses two or three times daily is said to be useful in increasing the flow of urine. The flag-

ging strength of the little patient should be overcome by strychnia and proper food. Soluble foods, in the mild, uncomplicated form of the disease, as well as the more complicated, such as sweet milk, soups and animal broths should be employed. All other complications as they arise, should be treated as their symptoms indicate.

It is impossible in so short a paper as this to cover thoroughly the ground occupied by scarlet fever, and I desire

to say that my object in treating this subject was not to present a full and rounded discussion of it, but simply to call to mind some phases that are not uncommonly met with, but which are so important that to observe their earliest approach, to thwart them, or break their force to some degree, by applying such treatment as to lessen permanent damage, is the end to be desired.

Chattanooga, Tenn.

## THE NON-OPERATIVE TREATMENT OF PHIMOSIS IN INFANCY.\*

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THE two common congenital malformations of the male genitals are adherent prepuce and phimosis. Adherent prepuce is so common, however, that it may be considered as almost on the border-line of the physiological, the more so from the fact that the adhesions, which are usually few and small, almost invariably disappear as the child grows older. Phimosis is the condition in which the prepuce is so narrowed that it cannot be retracted over the glans. It varies greatly in degree, in some cases there being no opening at all, while in others it is only a pin-hole. In most cases, how-

ever, a part of the glans is visible. When the prepuce is also elongated, the condition is called hypertrophic phimosis. All degrees of phimosis may be complicated by adherence of the prepuce. When the preputial orifice is very small, there is difficulty in passing urine, and as the result of straining, umbilical or inguinal hernia, prolapsus ani and hydrocele may be produced. The retained secretions may cause irritation, posthitis and balanitis. These cause frequent and painful micturition, retention and priapism, and not infrequently lead to masturbation. Various secondary reflex nervous disturbances may also result from the local irritation. The

\* Read before the Clinical Section of the Suffolk District Medical Society, March 17, 1897.



most common of these are nocturnal incontinence, insomnia and night terrors, but in rare instances convulsions may be caused.

In the light of the possible consequences of the condition, it seems self-evident that all cases of phimosis should receive early treatment. This treatment should be continued until the prepuce can be easily retracted and the glans kept clean, for in this way only can relief from the local and reflex symptoms be obtained. The three methods for attaining complete retraction of the prepuce are dilatation, incision and circumcision. Of these, the latter is, of course, the most radical. The advisability of removing the natural protection of the glans penis, unless it is absolutely unavoidable, must, however, be considered as at least questionable. I feel, moreover, that it is unnecessary, except in certain cases of hypertrophic phimosis, and that equally satisfactory and lasting results may be obtained from gradual dilatation. By the exercise of a little time and patience, even the tightest strictures may be overcome, as the young tissues are very distensible, and readily adapt themselves to new conditions. Many of the milder forms may be relieved by simply pulling the foreskin back with the fingers, and breaking down the adhesions, if they exist, with a probe or a director. Even

in these cases, however, it is advisable not to complete the procedure at one time, but to do it gradually. In cases in which the phimosis is more marked, the first step is to thoroughly dilate the opening. This I do by introducing into it the points of ordinary dressing forceps, and allowing them to dilate it by their elasticity. Several sittings, best on successive days, are often necessary to accomplish this.

The prepuce is then gradually retracted over the glans, and the adhesions broken up, as in the milder cases. Care must be taken not to produce a paraphimosis the first few times that the prepuce is completely retracted. The mother then pulls back the foreskin daily for some time in order to prevent possible recontraction. Cleanliness is, of course, essential both during and after the treatment. Almost all cases of phimosis, except those in which the prepuce is very long, can be satisfactorily treated by this method, and the field for surgical interference is thus restricted to this class of cases alone.

The advantages of gradual dilatation are the attainment of equally as satisfactory results as by more severe methods, the avoidance of a surgical operation, and the retention of the natural protection of the glans penis.

317 Marlboro St.

# BROMOFORM POISONING IN A CASE OF PERTUSSIS IN AN INFANT; RECOVERY.

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S. B., 2½ years old, was seen by me in the children's department of the German Poliklinik on Nov. 4, 1896, with the following history:

The child has been coughing some time; the cough appears to be very painful, for the child always cries after each attack; the attacks are very violent and usually end in vomiting. The face during the attack is very red, or bluish red; these attacks are more frequent, and also more violent during the night, and the mother believes that the child coughs less in the open air when going through the street. Excepting a slight attack of summer complaint, there has been no previous illness. The child was nursed at the breast, and there is nothing abnormal visible.

General Inspection.—The head is square; fontanelle closed; no evidence of cranio-tabes; the eyes bulge slightly; exophthalmus; a slight œdema of the eyelids; face looks puffy; color of the skin looks greyish; the tongue is slightly furred; throat shows a very reddened congestion of pharynx, left tonsil is enlarged, right tonsil also, and the uvula is elongated; submaxillary glands enlarged; epistaxis has existed after a very violent coughing

paroxysm; the nose presents nothing abnormal, *i. e.*, polypi which might be held directly accountable for this condition. Dentition has been quite regular; a few carious teeth exist. The examination of thorax and abdomen shows the lungs quite normal, some moist crepitant râles heard at the apices of both right and left lungs, also loud sonorous râles. Pulse is accelerated, fairly good and regular; the temp. was 99 degrees F. in the rectum; respiration did not appear to be abnormal.

The diagnosis of pertussis and bronchitis in a rachitic child was made. I prescribed bromoform, and it was given in a solution containing:

Bromoform . . . . .	gtt. xl.
Syr. cort. aurant. . . . .	30.0
Alcohol . . . . .	10.0
Aqua q. s. ad. . . . .	60.0
M.	

The child was ordered a teaspoonful of this mixture every hour. The medicine was given regularly, and a few days later he was brought to me in the dispensary in a condition of stupor. The child could not be roused, the pulse was soft, intermittent, about 120 in a minute, the upper extremi-

ties were warm, the lower extremities were cold, face and ears were covered with an erythematous eruption, the corneal reflexes were partially absent, and the pupils did not re-act; the temp. in the rectum was 99 degrees F.

The child was in a condition of the deepest narcosis; the respiration was slow; slight snoring was audible. The child was given continued hypodermic stimulation by Dr. Emil Joel and Dr. Kahn, who also faithfully performed artificial respiration; the child was given mustard footbath and faradization, and also coffee and brandy per mouth; the child was reported well the following day.

Quantity of Bromoform.—As the specific gravity of bromoform is greater than that of the other ingredients in the mixture, it naturally

sinks to the bottom of the bottle, and the mixture, in order that it be properly given, should have been thoroughly shaken before administering it. This not having been done, the bromoform precipitated, and must have been given in one dose in the last teaspoonful contained in the bottle, and the child must have received nearly all of the 40 drops at one time. I have used bromoform since 1890, and this is the first case of bromoform toxæmia that I have seen. It impressed upon me the importance of prescribing this drug in its pure form, without the addition of any diluent. I usually order it in a dark bottle to protect it from the light, and well stoppered, preferable a glass-stoppered bottle. The child recovered.

187 Second avenue, New York City.

## THE AMERICAN PEDIATRIC SOCIETY'S REPORT ON THE COLLECTIVE INVESTIGATION OF THE ANTITOXIN TREATMENT OF LARYNGEAL DIPHTHERIA IN PRIVATE PRACTICE.

WASHINGTON, May 4, 1897.

In this second and supplementary investigation, the aim has been to ascertain: (1) What percentage of cases of laryngeal diphtheria recover without operation under antitoxin treatment; (2) What percentage of operated cases recover. The report now submitted may properly be limited to answering these two inquiries.

Since the beginning of the general use of intubation, no disease has been

more thoroughly observed and more fully reported than laryngeal diphtheria. Operative cases, especially, whether ending fatally or favorably, have been fully and promptly put on record. The result has been a collection and tabulation of cases available for control, such as few diseases offer. There are thousands of intubation cases before the days of antitoxin, and thousands since, available for comparison. It is, then, to cases of

laryngeal diphtheria, especially those requiring operative interference, that we may apply the crucial test of the value of the antitoxin treatment.

Sixty thousand circulars containing the following questions have been distributed:

Age of patient?

Diagnosis confirmed by:

- (1) Presence of other cases in the family?
- (2) Appearance of membrane elsewhere?
- (3) Bacteriological cultures?

How many days and parts of a day after the first appearance of the disease was antitoxin first administered?

How many doses of antitoxin were administered?

Dose of each injection in antitoxin units?

Whose antitoxin used?

Non-operative cases — evidence of disease:

Hoarseness?

Aphonia?

Stenosis?

Operative cases:

(1) Intubation? On what day?

(2) Tracheotomy? On what day?

How long, in days and fractions of a day, was tube in the larynx or trachea?

Sequelæ (in recoveries):

(1) Broncho-pneumonia?

(2) Paralysis?

(3) Nephritis?

Death, cause of, and on what day?

(1) Broncho-pneumonia?

(2) Extension of membrane to the bronchi?

(3) Sudden heart paralysis?

(4) Nephritis?

(5) Sepsis?

(6) Accidents of operation?

Recovery?

Remarks, especially on fatal cases?

employed: contributors to first report, members of the society acting as agents for their respective localities, boards of health, local medical societies and antitoxin manufacturers. At the outset, in this connection it is a pleasure to acknowledge that the labors of the committee have been much lightened by the uniform goodwill of all addressed, more aid coming spontaneously than in the previous investigation. It is also a pleasure to especially acknowledge the society's indebtedness for efficient aid in distributing circulars and securing returns of H. K. Mulford Co., Parke, Davis & Co., Lehn & Fink (Gibier's), the Health Departments of Chicago, St. Louis, New Orleans, Denver, San Francisco, Boston, Washington, Buffalo, Providence, Ann Arbor, Newark, Montreal, Toronto and others.

To the New York Health Department are due the thanks of the society for every possible courtesy in distributing blanks and, through their inspectors, of securing returns of operative cases.

In order to reduce sources of error it was desirable to bring together a large number of cases, from widely distributed localities, from many different observers and operators, and for a period of time including all seasons of the year. All returns have been examined by the committee, and only such cases accepted as bore satisfactory evidence that they were first of all diphtheria, and secondly that the lesion had invaded the larynx.

These circulars were distributed throughout the United States and Canada, the following means being



A total of 1,704 cases of laryngeal diphtheria are ours for present study. A few cases (228) had not satisfactory evidence that there was laryngeal involvement; indeed, some were reported through misunderstanding the fact that only laryngeal cases were wanted, and a few were reported in which there was no mention that antitoxin was used. These cases are, of course, not included in the number referred to above. Of the 228 cases, 218 recovered, 10 died.

In a total of 1,704 antitoxin-treated cases of laryngeal diphtheria, there was a mortality of 21.12 per cent (360 deaths).

TABLE OF ALL CASES SHOWING AGE AND RESULT OF TREATMENT.

	Fatal.	Recov.	Totals	Mortality
1 year and under, . . .	25	35	60	41.66%
1 to 2 years, . . .	77	219	296	26.01
2 to 3 years, . . .	81	260	341	23.75
3 to 4 years, . . .	42	216	258	16.27
4 to 5 years, . . .	47	160	207	22.70
5 to 10 years, . . .	72	345	417	17.26
10 to 15 years, . . .	9	64	73	12.32
15 to 20 years, . . .	2	24	26	7.65
Over 20 years, . . .	5	17	22	22.72
Unknown, . . .	0	4	4	..
	360	1,344	1,704	21.12%

#### CASES NOT OPERATED ON.

The first inquiry of the circular was what percentage of cases of laryngeal diphtheria recover without operation under antitoxin treatment.

Of 1,704 total cases, 1,036 were not operated upon (60.79 per cent). Of these, most did not require operative interference; a few cases were thought to require it, but operation was refused. All cases are included, and it will be noted, there are no eliminations.

Among the 1,036 cases not operated on, there was a mortality of 17.18 per cent (deaths 178) or, to answer the inquiry of the circular exactly, of 1,036 cases not operated on, 82.82 per cent recovered (or 858 cases).

Good as is this percentage of recovery in so large a number of cases of diphtheria of the severest type, it is believed it is not as good as it ought to be. Cases of laryngeal diphtheria not requiring operation, according to the testimony of consulting intubationists, are seldom heard from a second time, and less often find their way into reports. It was formerly estimated that about 10 per cent of cases of laryngeal diphtheria recovered without operation. The present report shows that in 1,036 cases, 82.82 per cent recovered.

#### CASES OPERATED UPON.

In analyzing this class of cases, it is believed a more exact conclusion as to the value of the antitoxin treatment can be arrived at than in the non-operative.

There will be entire harmony of opinion as to the severity of laryngeal diphtheria which requires operative interference. In the early days of intubation it was customary to speak of the percentage of recoveries, and 25 per cent and 27 per cent were considered good results. In the last report the recoveries had crept up so high in the one hundred cases, that

it seemed more natural to speak of the percentage of mortality.

In this connection it is interesting to inquire what were the best reliable statistics of intubation, taking cases as they occurred, without selection, in pre-antitoxin days. In 5,546 intubation cases collected by McNaughton and Maddren in 1892, the mortality was 69.5 per cent, or, to bring the facts into line, 30.5 per cent recovered.

O'Dwyer's personal experience, in private consultation, brings us more clearly face to face with the old-time experience with diphtheria. Note that the following 500 cases came under the observation and care of one practitioner, a skilled operator, extended over a dozen years of time, and therefore included all types of the disease.

Exclusive of the first 100 cases of intubation, which he (O'Dwyer) regards as experimental, the results stand as follows:

	Per cent of Recoveries
Second 100 intubations, . . . . .	27
Third 100 " . . . . .	30
Fourth 100 " . . . . .	26
Fifth 100 " (which only reached 70)	27

Total percentage of *recovery* 27.56 per cent. When he had reached 70 on the fifth hundred something occurred which carried the phraseology up over the divide so that it was appropriate to speak of percentage of *mortality*. At this point in history, antitoxin arrived and interrupted forever the old series. In O'Dwyer's

next 59 cases the *mortality* was 14 deaths or 23.7 per cent.

In a total of 1,704 laryngeal cases there were 668 cases operated upon. In the 668 there were 182 deaths, or a mortality of 27.24 per cent. In the former report, in 553 intubated cases the mortality was 25.9 per cent. In approximate figures there is a difference between 27 $\frac{1}{4}$  per cent and 26 per cent.

#### SUMMARY.

Sixty thousand circulars were distributed throughout the United States and Canada.

Time allowance, the eleven months ending April 1, 1897.

Whole number of cases in this report, 1,704; mortality, 21.12 per cent (360 deaths).

The cases occurred in the practice of 422 physicians in the United States and Canada.

Operations employed:

(a) Intubation in 637 cases; mortality 26.05 per cent (166 deaths).

(b) Tracheotomy in 20 cases; mortality, 45 per cent (9 deaths).

(c) Intubation and tracheotomy in 11 cases; mortality, 63.63 per cent (7 deaths).

Number of States represented, 22, the District of Columbia and Canada.

Non-operated cases, 1,036, 60.79 per cent of all cases; mortality, 17.18 per cent (178 deaths).

Operated cases, 668, or 39.21 per cent of all cases; mortality, 27.24 per cent (182 deaths). Two facts may be recalled in connection with

this paragraph. First, that before the use of antitoxin it was estimated that 90 per cent of laryngeal diphtheria cases required operation, whereas, now, with the use of antitoxin, 39.21 per cent require it. Second, that the percentage figures have been reversed, formerly 27 per cent approximately representing the recoveries, while now, under antitoxin treatment, 27 represents the mortality. To put it in other words, before the use of antitoxin, 27 per cent recovered, now 73 per cent recover, and this in the severest type of diphtheria.

The present report will strike many members of the society as revealing a mortality a little too large in each of the two classes. The mortality is large, larger than the personal experience in private practice of many would expect.

The reasons for this are (1) that antitoxin is still used too late, either from procrastination on the part of the physician, or objection on the part of the friends; or (2) in a half-hearted way which shows itself in doses from one-tenth to one-fourth as large as they should be. In truth, both the physicians and the friends of the patient are timid.

This report, it must be admitted, shows too large a mortality. In the opinion of the committee it is a larger mortality than will ever be shown again. Antitoxin is gradually being used earlier in the disease, and it will soon be used in sufficient doses.

To the society, the committee de-

sire to say that they have sought to carry out their wishes in putting antitoxin on trial, to accept no testimony that did not bear the stamp of reliability, that they have employed the methods approved in the case of the first investigation and report, and that they have confined their work to definitely answering the main questions which the society and profession now have in mind. Points that were settled in the first report and have since been corroborated by general medical literature, are not again taken up.

If the committee are asked to put forth the three most valuable points established in this eleven months' work, they are:

First. The mortality of laryngeal diphtheria at present rests at 21.12 per cent.

Second. That 60 per cent approximately have not required intubation.

Third. That the mortality of operated cases is at present 27.24 per cent.

W. P. NORTHERY, M.D.	} <i>Committee.</i>
JOSEPH O'DWYER, M.D.	
L. EMMETT HOLT, M.D.	
SAMUEL S. ADAMS, M.D.	

#### THE COMMITTEE RECOMMEND:

ANTITOXIN should be given at the earliest possible moment in all cases of suspected diphtheria.

QUALITY.—Of the products on the market some have, by test, been found to contain one-half to one-third the antitoxin units stated on the label. Select the most concentrated strength

of an absolutely reliable preparation.

**DOSAGE.**—All cases of laryngeal diphtheria, the patient being two years of age or over, should receive as follows:

First dose—2,000 units at the earliest possible moment.

Second dose—2,000 units, twelve to eighteen hours after the first dose,

if there is no improvement in symptoms.

Third dose—2,000 units, twenty-four hours after the second dose, if there is still no improvement in symptoms.

Patients under two years of age should receive 1,000 to 1,500 units, the doses to be repeated as above.

## THE AMERICAN PEDIATRIC SOCIETY.

NINTH ANNUAL MEETING.

WASHINGTON, MAY 4, 5, AND 6, 1897.

THE meeting was opened by the president, DR. SAMUEL S. ADAMS, of Washington, who delivered an address entitled "The Evolution of Pediatric Literature in the United States." In this address, he reviewed in chronological order, the various works on the diseases of children, which have been written in this country during the past one hundred years. Every author writing upon this subject before 1870 was mentioned. Since that date, the contributions have been too numerous to receive individual mention. The first definite contribution to pediatric literature, was made by Dr. Rush, in 1789, in a description of influenza. Following this were mentioned the names of Caldwell in 1796, Stewart in 1806, the *American Matron* in 1810, Jackson in 1812, Miller in 1814, and Logan in 1825. There were numerous contributions between

that date and 1848, when J. Forsyth Meigs published his important work on the Diseases of Children, the last two editions of which appeared under the authorship of Meigs and Pepper. The next important name in pediatrics appeared ten years later, when Jacobi, in 1858, wrote his first paper on children. It is also notable that J. Lewis Smith wrote his first paper on children in the same year. The first edition of his well-known work on diseases of children appeared in 1869. The most important names which have since appeared as the authors of systematic works, are those of Keating in 1889, Starr in 1894, Sachs in 1895, Rotch in 1895, and Holt in 1896.

DR. JAMES C. WILSON read a paper on Tic Convulsif, and reported a case which belonged to the class of nervous diseases which includes the "jumpers," described by Beard. DR.



B. SCHARLAU presented a synopsis of fifty-six cases of empyema operated upon during 1896 with very favorable results. DR. W. D. BOOKER reported a case of congenital diaphragmatic hernia, associated with recurrent attacks of asthma dyspepticum. During one of these attacks the child died, and the true pathological conditions were revealed by the autopsy.

DR. J. P. CROZER GRIFFITH reported two cases of unilateral tremor in children. DR. J. HENRY FRUITNIGHT read a paper on a Frequent Significance of Epistaxis in Children. He believed that this symptom was frequently the result of cardiac disease, and should always receive full attention. DR. GEORGE N. ACKER reported two cases of meningitis, apparently tuberculous in nature, with recovery.

DR. JOSEPH O'DWYER reported a case of congenital stenosis of the larynx, in which relief was obtained by gradual dilatation with steel sounds. DR. WILLIAM OSLER read an extended paper on Adherent Pericardium in children, and reported cases. DR. A. JACOB reported a case of sarcoma of the skin in a newly-born infant, and read a paper on the origin of such growths.

DR. F. GORDON MORRILL reported an analysis of 100 cases of frank pneumonia, that term being used rather than lobar pneumonia, because of the confusion caused by the use of the latter term when applied to the pneumonias of children. DR. FLOYD M. CRANDALL read a paper on Heredi-

tary Tendency in pediatric practice, and called particular attention to certain misapprehensions which sometimes arise regarding that subject. DR. B. K. RATCHFORD read a paper on the Symptoms of Lithaemia as they appear in children, and considered the special symptoms in detail.

In a paper on Retro-cæso-phageal Abscess, DR. J. P. CROZER GRIFFITH called particular attention to the great difficulties experienced in making a diagnosis of that condition. DR. C. G. KERLEY reported a case of Exophthalmic Goitre apparently cured by the use of thyroid extract. The case was an undoubted one, and the beneficial effects of the extract seemed to be equally clear. DR. HENRY KOPLIK reported the extensive use of thyroid extract for the purpose of testing its value in different diseases of the blood and bones, and his conclusions suggested its more general use in those diseases. DR. FRANCIS HUBER also presented a paper reporting a cure of goitre by thyroid extract. The report of the committee on the collective investigation of the antitoxin treatment of laryngeal diphtheria in private practice (see page 558) was read by the chairman, DR. W. P. NORRIS, the conclusions being as follows: (1) The mortality of laryngeal diphtheria at present rests at 21.12 per cent. (2) That sixty per cent approximately have not required intubation. (3) The mortality of operated cases is at present 27.24 per cent.

DR. JOSEPH O'DWYER read an im-

portant paper on Retained Intubation Tubes, this term being used to mean the necessity of continuing intubation long after the disappearance of the original disease. DR. T. M. ROTCH reported cases of diphtheria of the eye and discussed the subject of antitoxin in diphtheria. DR. HENRY KOPLIK exhibited an apparatus by which the bacteriological diagnosis of diphtheria could be made within three or four hours.

DR. EDWARD P. DAVIS presented an important contribution on Prenatal Infection in Infancy causing diseases which develop during the first month of life. DR. IRVING M. SNOW reported a case in which poisoning by acetanilide had resulted from the absorption of that drug in the umbilical wound. DR. T. M. ROTCH presented a specimen of Ileo-colitis and DR. R. G. FREEMAN presented an improved nursing bottle.

Papers were read by title by DRS. J. LEWIS SMITH, W. F. LOCKWOOD, W. P. NORTHRUP, R. G. FREEMAN, H. D.

CHAPIN, FRANCIS HUBER, C. G. JENNINGS, C. P. PUTNAM.

The following officers were elected for the ensuing year: President, Dr. L. Emmett Holt; first vice-president, Dr. Henry Koplik; second vice-president, Dr. Charles G. Jennings; secretary, Dr. Samuel S. Adams; recorder, Dr. Floyd M. Crandall; treasurer, Dr. F. A. Packard; member of council, Dr. Charles P. Putnam.

The following were elected members: Dr. J. H. McCollom, Boston; Dr. J. P. West, Bellaire; Dr. Churchill, Chicago; Dr. E. E. Graham, Philadelphia; Dr. Harold Williams, Boston.

The subject of Infantile Scorbutus was selected for collective investigation, the report to be made at the next meeting. The following committee was appointed: W. D. Booker, J. P. Crozer Griffith, C. G. Jennings, A. Caillé, J. Lovett Morse. Cincinnati was named as the next meeting, the exact date of the meeting not being decided.

## PROCEEDINGS OF THE PHILADELPHIA PEDIATRIC SOCIETY.

APRIL 13, 1897.

J. P. CROZIER GRIFFITH, M.D., PRESIDENT, IN THE CHAIR.

DR. THOMPSON S. WESTCOTT reported a case of influenza, with persistent respiratory failure in an infant of four weeks. He said in part:

The child had been fed artificially from the age of two weeks. When

four weeks old he contracted influenza, from which several members of the family were suffering at the time. After several days, during which an occasional hoarse cough was the only symptom, the child became acutely ill

with signs of a localized focus of broncho-pneumonia at the root of the right lung. Eight hours later, there commenced a series of attacks, at first characterized by a slow spasmodic closure of the glottis associated with slight general convulsive symptoms, and later by recurring spells of apnoea, preceded by slowly increasing cyanosis. Individual attacks yielded at first to the warm bath and flagellation, but later required, besides, cold affusion to the chest, more severe flagellation, with strips of pasteboard over back, buttocks, and finally over cheeks and side of head, oxygen inhalations, and artificial respiration by the Schultze method. Up to midnight of the first day, 29 distinct attacks of alarming apnoea had been counted, and during the next twelve hours fully as many, if not more, occurred.

The treatment embraced bromides at hourly intervals till complete relaxation was obtained, tincture of digitalis in half-drop doses every two hours, atropine sulphate hypodermatically in dose of 1-1500 grain about every three hours. After 30 hours, when it did not seem that there was any hope of recovery,  $\frac{1}{2}$  grain of anti-pyrim hypodermatically was given, with what seemed to be immediate improvement, and after six hours the child was practically out of danger, except for the general weakness which threatened to render efforts at cough ineffectual. Under stimulating treatment, aided by irritation of

the nares by the fumes of ammonium salts, expectoration was established, and the baby made a rapid and complete recovery. Three doses of anti-pyrim were given, the last one about sixteen hours after the more severe symptoms had subsided, when the tendency to cyanosis again became alarming. This was followed by a prompt and definitive cessation of all alarming respiratory symptoms. The only sequel of the disease was an alternating internal strabismus, which lasted for several weeks, and then gradually disappeared without special treatment.

At the outset, the attacks of respiratory suspension were spasmodic in character, apparently depending upon a condition of irritability of the laryngeal mucous membrane, which in older children affected during the recent epidemic, caused a cough closely simulating that of pertussis or the prodromal stage of measles. Later on, the increasing stupor and tendency to convulsion (accompanied by what was evidently centric failure of respiration and the residual strabismus), pointed to pressure at the base of the brain, probably quite limited in extent, and possibly to some extent involving the medulla.

#### DISCUSSION.

DR. F. A. PACKARD.—This case is very interesting from many points of view, particularly in one, that is in connection with the discovery of Guiteras and White in the epidemic

that occurred next before that of 1889 and 1890, of distinct lesions of the pneumogastric nerve. This would explain many of the symptoms present in Dr. Westcott's case.

DR. ALFRED HAND.—As Dr. Westcott has said, I had charge of this case for a time, but there was practically nothing for me to do, except watch the child. The effect of antipyrin in controlling the attacks was wonderful, and this strengthens the view that they were centric in origin. The one attack of respiratory failure that I saw, a very mild one, seemed to be centric.

DR. WESTCOTT.—There is very little more to be said in connection with the case, except in regard to the point of the value of antipyrin in this particular case. As I said in the paper, it is quite possible that the child was beginning to get better before the antipyrin was administered. Looking at it now, I am inclined to attach rather more importance to that fact than I was at the time when I began its administration. It seemed, however, as if there was no hope at all. None of us expected the child to recover, and although I am usually rather hopeful about illness in children, I had about given it up; in fact, during the night it seemed almost cruel to keep up the rather heroic and somewhat brutal treatment to which this baby was subjected. I am well aware that in children sometimes, especially in cerebral conditions, marvelously rapid changes take place in

the circulatory conditions. I remember very distinctly some five or six years ago, seeing a case of epidemic cerebro-spinal meningitis with Dr. Curtin. We saw the child one morning; it was absolutely comatose, and we both left the house, having given the child up. Within half an hour the father came to my office, asking me to come back and see the child, as it was asking for something to eat. This child subsequently made a very satisfactory recovery. That was a lesson which I have never forgotten, never to give up a sick child until it is absolutely dead, and I think this was a lesson that constrained me to keep up the treatment with this little baby as long as we did, and which finally resulted very satisfactorily. As to the point raised by Dr. Packard, I feel inclined to maintain in view of the positive evidences of cerebral involvement, and their rapid subsidence in conjunction with the residual strabismus, and the occurrence of at least one cerebro-spinal convulsion, that the principal seat of the lesion was at the base of the brain, though the existence of some pneumogastric disturbance cannot be positively denied.

DR. E. E. GRAHAM presented a child with natal teeth, and said:

The child is about four weeks of age. Breast fed. The father is a German, the mother an American. They are both healthy and the family history is good. The tooth, which is a lower right central incisor, was noticed by the nurse a few hours after



birth. The mother herself states that she saw it the following day, and Dr. Irwin saw it on his next visit, so there is no question that the tooth was present at birth. The tooth is rather badly formed, the cutting edge is slightly conical, and it is rather a poor color. The child is a full-term baby, fairly well nourished. I can find no evidence of any unusual bony developments; the anterior fontanelle appears to be of normal size, and the child is apparently well formed, as far as the thorax and upper portion of the limbs are concerned. The tibiae are quite considerably bowed. This is the only pregnancy, and there is no history of miscarriage. The mother is 23 years of age, father 25 years of age. I can find no tubercular or specific history. The father admits the use of perhaps more than a moderate amount of liquor and tobacco. One of the interesting facts in regard to the history of the case, is that the father claims that either he or one of his brothers, also had teeth at birth. It is a family record that one of the children was born with teeth. Curiously enough, the mother claims the same thing, that either she or her sister was born with a tooth. The tooth is rather loose and probably is not perfectly formed. It looks as though the incisor immediately adjacent would quickly pierce the gums. The mother complains of only slight pain in the nipple during nursing, and there is no evidence of injury to the nipples by the tooth.

DR. J. MADISON TAYLOR.—I regret to say that I did not bring a specimen to show of quite a similar tooth extracted by me at the Children's Hospital. The child was brought to me because the mother was suffering from laceration of the nipple from the tooth. I thought it was needless for the child, and doubtless damaged the mother, and I easily extracted it after the manner of the Chinese, with my finger and thumb. The child had it at birth, or immediately thereafter, and it was one of the lower central incisors, as I believe this is. I have seen two such cases.

DR. FRANCIS R. PACKARD.—I assisted Dr. McCoy in a case interesting in this connection. It was that of a woman 48 years old, born with central incisor of the upper jaw. It was extracted, and as a result, a mass of callus formed in the upper jaw, and when a permanent tooth developed, it was deflected, and Dr. McCoy removed it from the nostril, from which there had been since childhood, persistent purulent discharge. The operation gave permanent relief to the nasal condition. In regard to the frequency of occurrence in the same family, Dr. Benton reported in the *Journal of the American Medical Association* the case of his wife, who had had two children each born with teeth, and who herself had had teeth at her birth.

DR. MILLER.—I would like to ask Dr. Taylor why he removed that tooth? We should remember the child

doesn't get another until six or seven years old.

DR. ROSENTHAL.—I have seen a number of such children. The teeth seem to wear down from constant suckling, to become rounded and remain for two or three years and then drop, just as first teeth of childhood. I have never seen that they give any trouble such as Dr. Taylor describes.

DR. J. MADISON TAYLOR.—I would say that the tooth was quite loose, could be of no service to the child, and lacerated the mother's nipple each time the baby took nourishment.

DR. J. P. C. GRIFFITH.—Shakespeare refers to Richard being born with teeth, and that accounting for his savage nature.

DR. E. E. GRAHAM.—In regard to the removal of these teeth, in the majority of cases they are loose, badly formed, poorly nourished, and drop out. It is hardly necessary to remove them in the majority of cases. I think they should not be removed unless they are doing damage to the breast of the mother.

DR. J. MADISON TAYLOR presented a case of Recovered Concurrent Typhoid Fever and Tuberculosis.

The case was a young girl of ten years of age who had been treated in the Children's ward of the Polyclinic Hospital for a thoroughly well-marked attack of typhoid fever, during the course of which, acute tuberculosis of the lungs manifested itself, producing profound prostration and emaciation. The child was apparent-

ly perfectly well, having gained thirty pounds in weight, the pronounced lesions distinctly demonstrable in the right lung, and lesser lesions in the left lung being now healed. At one time a bronchus was perforated, and a large amount of fetid pus and fragments of lung tissue were expectorated. The temperature chart exhibited, showed great fluctuations, which were controlled more or less well by prompt cool spongings. Digestion was maintained well, and this enabled life to be saved. The remarkable point was the intensity of both processes, yet recovery followed.

DR. J. M. O'MALLEY read a paper upon Typhoid Fever in Children, with Report of a Family Epidemic.

DR. JOSEPH LEIDY reported the following case of typhoid fever, with persistent high temperature in a child of 3 years:

There were well-marked symptoms of typhoid fever, and from the beginning there was no difficulty in diagnosis. Temperature slowly rose and reached 103° at the end of the first week. For four weeks the temperature ranged between 103° and 104°, and at times got as high as 105° and 106°. At the end of the fourth week the temperature slowly began to fall. At this time the case presented the appearance that a typhoid generally does at the beginning of convalescence. At the expiration of the fourth week the child had intestinal hemorrhage, extending over several days, and grew rapidly worse, the

temperature falling immediately to rise to  $105^{\circ}$  to  $106^{\circ}$ , and remained at this height, until its termination some two weeks later in death.

The case is of interest as presenting, first, the characteristic symptoms in the early stage, the presence of epistaxis, the persistent high temperature, and thirdly, the intestinal hemorrhage which is, comparatively speaking, rare in children.

DR. W. A. N. DORLAND has placed in my hands the chart of a case of typhoid, showing the temperature range of a case of typhoid which came under his observation, which shows very markedly and beautifully the typical remittent course of temperature as it frequently occurs in childhood. The experience of writers as well as of observers upon the subject, is that the temperature runs a modified course, usually remittent in character in young children and early puberty. This certainly has not been my own experience, nor has it been the experience of a number of men who have had a large experience, but have written very little upon this subject in connection with this disease. In the temperature charts to which I have had access, some cases in the Pennsylvania Hospital, and several in the Children's Hospital, the temperature, instead of being remittent type, has pursued the course that it does in adults, except possibly somewhat modified. In the case before you, you will see that it is one which presents rather the temperature which

you would expect to find in a severe case of typhoid in an adult. The chart presented by Dr. Dorland presents the remittent type of typhoid. As to the so-called abortive typhoids, and those which show a marked remission reaching almost the normal point, I am inclined to believe if the blood had been carefully examined in these cases, had there been as much known about the subject of malaria a few years ago as we know now, many of them would have turned out to be cases of malaria, and not typhoid fever. We have all seen cases of so-called remittent typhoid fever in early life, but certainly great care must be exercised in diagnosing cases of this type. The course of fever during obscure cases of entero-colitis at times, makes the diagnosis, without pathognomonic signs, a question. In connection with such cases, the term "innominate fevers" has been suggested until we are better able to make a positive diagnosis.

DR. J. P. CROZER GRIFFITH read a paper upon Fœtal Typhoid, and the Widal Reaction in the New-Born. He reviewed some of the infectious diseases in which there was reason to believe that an attack might occur *in utero*. He referred to the greater difficulty in determining the possibility of this occurrence in typhus fever, owing to the less characteristic symptoms which the disease exhibits. Still there are cases reported in which typhoid bacilli have undoubtedly been found in the fetal tissues, and he



reviewed some of the literature bearing upon this. Finally, he referred to the few experiments which have been made with the Widal test in the blood of the foetus and new-born, and reported a case in which he had obtained a positive reaction in the blood of a child born from a typhoid mother.

DR. J. H. JOYSON reported a case of suppurative osteomyelitis of the tibia in a child aged  $2\frac{1}{2}$  years in the service of Dr. H. R. Wharton at the Children's Hospital. The entire diaphysis of the tibia was removed as a sequestrum in one piece. The patient suffered from continuous high fever from the time of admission, and finally died of septic pyæmia.

Autopsy showed besides areas of necrosis in the viscera and catarrhal pneumonia, what were apparently healing typhoidal ulcers in the intestine. The suppurative osteomyelitis was probably post-typhoidal, the result of a mixed infection. It has been shown in these cases that the Eberth bacillus alone may cause a form of osteomyelitis, usually circumscribed and terminating either in resolution, caseation or liquefaction, in the latter cases with or without the production of small sequestra. It may also by weakening the resistance of the medullary tissues furnish a nidus for the implantation of the pyogenic cocci, especially the staphylococcus pyogenes aureus. The first form is usually chronic with little tendency to spontaneous healing

when a sinus forms, and to effect a cure a thorough removal of the diseased tissues is necessary. The latter form does not differ from ordinary suppurative osteomyelitis, and like it demands early and radical operative treatment.

DR. A. O. J. KELLY reported the case of a suckling, aged 25 months admitted to the wards of Dr. Donellan at St. Mary's Hospital. The mother had suckled the baby during the first two weeks of a course of typhoid and died in the same Hospital four days before the child's admission. When the baby came under Dr. Kelly's charge it was irritable, slept badly and had anorexia, coated tongue, fever and diarrhœa. The abdomen was distended, the spleen palpable, spots were present and there was gurgling. The urine was negative. The treatment was repeated, minute doses of calomel followed by milk diet. Cool sponging when the temperature was above  $102^{\circ}$  (only four times) and small doses of salol and whiskey. There were no complications and the child was discharged well after three weeks.

The temperature and source of infection were of interest. As to the latter, Dr. Kelly had been unable to find reported examples of typhoid bacilli found in mother's milk (staphylococci have been repeatedly discovered) but thought this a not improbable source since they have been found so widely distributed in the organs after death and in the blood,



sputum, urine, etc., during life, Cow's milk, water, or contaminated bed-clothing might, however, have been the source.

The temperature was markedly irregular, showing diurnal variations of as much as  $4^{\circ}.5$  and sometimes showed the normal type, being lowest in the evening. It reached normal on the eighth day after admission after rapid lysis, but showed slight variations for a week later.

DR. E. ROSENTHAL.—It has been my experience to see typhoid in children, mostly after the age of two years. I can only record one case of an infant that had typhoid fever and this was left in my charge by Dr. Owen. The mother contracted typhoid herself, and the child's symptoms were very suggestive of the same disease. After weaning and placing upon suitable diet and treatment it made a good recovery. It was about three months old. No bacteriologic tests were made but the fact that the mother had typical typhoid seems to strengthen the diagnosis.

The cases of typhoid fever that I have seen have a different course from those presented tonight, and have often shown nervous symptoms to such an extent that the diagnosis could not be established between meningitis and typhoid fever.

In two cases I have seen with consultants I have made a diagnosis of typhoid in opposition to theirs of meningitis. The diagnosis were never confirmed, but the fact that other

members of the same families sickened with typhoid about the same time lends support to my view.

At the present time I have a little child, two years and six months old, ill six days with typhoid symptoms and Dr. Pease of the city bacteriological laboratory has just told me that Widal's test is positive. A great deal of stress has been laid upon the mild character of typhoid fever in children. This I believe erroneous as dangerous cases are, I believe, as frequent in children as in adults. The chart Dr. Leidy has presented shows the kind we met with in our part of the city, where the people are afraid to use water. I have not seen hemorrhage from the bowel, but the nervous symptoms upon which I lay such particular stress I find are the most prevailing symptoms down among this class of people.

I was interested in hearing the mention of typhoid following scarlet fever. I had one case which went through a typical course of typhoid immediately after being discharged from the municipal hospital where it had had scarlatina. I have also seen typhoid follow chicken-pox.

DR. MUEHLECK.—I am glad Dr. O'Mally mentioned the peculiar behavior of the leucocytes in typhoid fever. This is a point which has been often overlooked, and yet it is a point of great importance in our differential diagnosis. Since the investigations of Widal, von Limbeck and others we know in contradistinction

to a pronounced leucocytosis which almost invariably takes place in most of the infectious diseases, there is not only an absence of increase, but an actual decrease of leucocytes in typhoid fever, so much so that this decrease is often to the extent of 1800 in the cubic millimetre. This is remarkable because it has been shown that the proteines of Eberth's bacillus are positively chemotactic, that is they attract the leucocytes. I think Dr. Rosenthal's point might very quickly have been cleared up in this way: In meningitis simplex we have remarkable increase in leucocytes, while in typhoid fever we have a decrease.

Dr. J. M. BROWN read partial notes of a case of typhoid in a child of nine years, complicated in the third week with pneumonia. The temperature ranged high, occasionally reaching  $106^{\circ}$ , but energetic hydrotherapy brought a good recovery.

Dr. MILLER.—Did you say, Dr. Griffith, that the mother's milk was tested in your case?

Dr. GRIFFITH.—It was not.

Dr. MILLER.—It seems to me in view of the statistics of Dr. Northrup of the New York Foundling Hospital, and they must be very accurate, we ought to be very cautious in making the diagnosis of typhoid fever in infants. I have seen a great deal of typhoid fever in children but I have never seen a case under three years of age. Unless we can find the rose spots and have a more or less typical fever I do not think we are justified

in making the diagnosis in infants. Nor are we helped either at the *post mortem* table; the fact of enlarged solitary follicles, enlarged Peyer's patches and enlarged spleen are not sufficient to establish diagnosis of typhoid fever *post mortem*. I had abundant opportunity to verify this in making a number of autopsies at the Sheltering Arms, with which I was once connected. The similarity of the lesions of children dying from intestinal catarrhs with the lesions of typhoid fever is striking. We have the swelling of the solitary follicles, Peyer's patches and of the adjacent lymph glands. Dr. Arthur V. Meigs has pointed this out; and some years ago at the Pathological Society he presented specimens from the same institution showing this same point. We must exclude malaria plasmodium, and we should also bring to our aid the newer methods, particularly the Widal test before we can establish a diagnosis of typhoid fever in infants, unless we have the rose spots.

Dr. JOSEPH LEIDY.—I confined my remarks entirely to the temperature of the case which I reported, without going into the symptoms. The nervous symptoms of this case were classical. The aphasia in the fourth week was marked. There were two adults in the same family who had suffered from typhoid fever and had made excellent recoveries.

There were no complications beyond those noticed.

D. L. EDSALL,  
Recorder.

## THERAPEUTIC NOTES.

### *Treatment of syphilis by intramuscular injections of mercury.*—

The salicylate of mercury was introduced by Silva de Arango, and afterwards employed by Bruno Chaves, Eicherdlingen, Jadassohn, Petersen, Neumann, Blasecko and Tarnowski, the latter having used it more than 176,000 times.

Hallopeau and Bureau have used it, slightly modifying Tarnowski's method, the following being their formula:

Hydrarg. salicylat.	4.0
Vasellini liquid.	30.0

Each cubic centimeter contains about thirteen centigrams of salicylate of mercury. This liquid is prepared as follows:

The salicylate of Hg is powdered, washed in boiling alcohol, and dried in an oven. It is then triturated in a sterilized mortar with the amount of liquid vaseline, and then the mixture is put in a sterilized bottle. This formula should be made fresh for use and the salicylate of Hg should be reduced to an impalpable powder, so that it will not obstruct the caliber of the needle during an injection.

The injection should be given by means of a Strauss syringe and a long irido-platinum needle, and is pushed deeply into the midst of the buttock into the muscles. The needle must not be inserted either too high up or

too near the retro-trochanter notch, because if this is done, the patient experiences more pain. A half a cubic centimeter of the solution is injected at each séance, usually two injections a week being enough, making the weekly dose of the salt, thirteen centigrams.

One hundred and forty-eight patients have been treated by Hallopeau, and received in all 340 injections. No accident occurred; two patients only had slight stomatitis. The nodes following the injections caused no trouble for the patients.

The effects of this treatment are usually very satisfactory, and began to be manifest after the third or fourth injection.

*Vaginal Ovariectomy.*—Shauta believes that the vaginal route is especially indicated in operating for gonorrhœal infection of the adnexa, and also advocates the use of ligatures. He also operates through the vagina for fibroids by morcellation when the growth does not reach the umbilicus, and also during the first months of cases of extra-uterine pregnancy. Abdominal section is reserved for adnexa which adhere to the intestine, for large myomata, advanced extra-uterine gestation and adherent ovarian tumors.

Up to the present time Shauta has removed twenty-three ovarian cysts varying in size from an adult head to

those occupying the entire abdominal cavity, and containing from 10 to 15 litres of liquid.

The essential condition for vaginal operation is an absence of intestinal or peritoneal adhesions. Cysts of the round ligament may also be removed *per vaginam*. Adhesions are easily discovered if present in tumors of medium size if the examination is made with narcosis, but for large tumors diagnosis is more difficult. In the latter case great importance must be given to the greater or lesser mobility of the upper limits of the growth during the movements of respiration.

The operation consists of an incision of the vaginal mucous membrane on the anterior aspect of the uterus. The bladder is carefully peeled off and the peritoneal cul-de-sac is reached and opened. The tumor is pushed down to the incision by the hands of an assistant making pressure through the abdominal walls and when near a trocar is inserted. When part of the liquid has been withdrawn the lips of the opening in the cyst are seized with strong clamps and the growth is drawn down into the vagina where it is quickly emptied. The pedicle is tied off with silk, the peritonemum sutured with catgut and the vaginal incision closed with silk.

Multilocular cysts are operated on in a similar manner, only when one pocket has been emptied and only a part of the cyst wall is brought into the vagina, the other pockets are

opened with a long narrow knife as fast as they are drawn down to the opening of the vaginal incision.

In dermoid cysts greater precautions must be taken against infection of the peritoneum as the contents of these cysts are in some cases very septic.

*Anemia in Pregnant Women.*—Anemia during pregnancy, with a weak heart, although without any organic lesion, is of frequent occurrence in pregnant women, especially those who have had several children in rapid succession. The following formula, due to Dr. Cumston may be found of service:

Sparteïn. sulph.	0.01
Ferri oxalat.	0.10
Ext. gentian.	
Ext. liquirit. aa. q. s. ut	
f. pil. no. i. D. tal. dos.	
no. xxx.	

S. Take one pill after each meal.

*Camphor as an antigalactagogue.*

Dr. A. Herrgott says that he has employed camphor successfully when, for some reason, nursing must be stopped. The results that he has obtained would appear to be such as would highly commend the drug for this purpose.

It is prescribed at the dose of twenty centigrams in cachets three times a day for three days.

In some thirty cases who were given camphor as above prescribed, the secretion of milk almost always di-



minated in a very remarkable manner.

Dr. Herrgott was led to use camphor as an antigalactagogue by the results obtained in nursing cows by Kiener.

*Vomiting of Pregnancy.*—The two following formulæ may be tried with some chance of success:

Cocain. hydrochlor.	0.10
Antipyrini	1.0
Aq. dest.	90.0

M. D. S. A desertspoonful to be taken every hour until relieved.

N. B. The effects of the cocaine must be carefully watched!

Sodii bicarb.	6.0
Potass. bromid.	
Sodii bromid.	aa. 4.0*
Ammon. bromid.	1.0
Syr. cort. aurant.	60.0
Aq. dest	240.0

M. D. S. A tablespoonful every two hours.

## BOOK REVIEWS.

(All Exchanges and Books for Review should be sent to DR. C. G. CUMSTON, 871 Beacon Street, Boston.)

SYSTEM OF SURGERY. Edited by FREDERICK TREVES, F.R.C.S. In two volumes. Philadelphia, 1895-6. Lea Brothers & Co., publishers. Price, \$15.00.

We have in this work a practical treatise on modern practice of surgery, written by men of recognized ability.

Vol. I is divided as follows: Surgical Pathology, by G. S. Woodhead; Inflammation, by W. Watson Cheyne; Suppuration, by W. Watson Cheyne; Ulceration, Gangrene, Syncope and Shock, by W. Watson Cheyne; Erysipelas, Pyæmia, Tetanus and Tetany, by C. B. Lockwood; Wounds and Contusions, by W. Watson Cheyne; Military Surgery, by Surgeon-Major Andrew Duncan; Burns and Scalds, by C. B. Lockwood; The Influence of Constitutional Conditions upon Injuries, by F. Treves; Anæsthetics, by F. M. Hewitt; Surgical Diseases due

to Microbic Infection and Parasites, by Geo. H. Makins; Tuberculosis, by F. Treves; Rickets, by Geo. H. Makins; Hamophilia and Hysteria in its Surgical Relations, by F. Treves; Syphilis and Gonorrhœa, by Jonathan Hutchinson, Jr.; Tumors, by J. Bland Sutton; Injuries of Blood Vessels, by A. Pearce Gould; Diseases of Blood Vessels and Aneurism, by A. P. Gould; Injuries and Diseases of Lymphatics, by J. H. Morgan; Injuries and Diseases of Nerves, by Anthony Bowlbey; Diseases of the Skin, by J. Hutchinson, Jr.; Injuries of Bones, by Stanley Boyde; Diseases of Bones, H. H. Clutton; Diseases of the Jaws, by J. Bland Sutton; Injuries of the Joints and Dislocations, by Marmaduke Shield; Diseases of Joints, by Arthur E. Barker.

Vol. II is as follows: Injuries and Diseases of the Muscles and Tendons, by W. Arbuthnot Lane; Surgery

of Deformities, by H. H. Clutton; Injuries of the Head, by H. P. Dean; Diseases of the Head, by H. P. Dean; Injuries of the Spine, by William H. Bennett; Concussion of the Spine, by Herbert W. Page; Diseases of the Spine, by Wm. H. Bennett; Diseases and Injuries of the Ear, by A. M. Shield, Diseases of the Nose, by A. M. Shield; Injuries and Diseases of the Neck, by Bernard Pitts; Surgery of the Chest, by Pearce Gould; Affections of Mouth, Palate, Tongue, Tonsil, and Pharynx, by Herbert T. Waterhouse; Affections of the Œsophagus, by W. B. Clarke; Injuries and Diseases of the Abdomen, by F. Treves; Hernia, by F. Treves; Diseases of the Rectum, by Chas. B. Ball; Diseases of the Breast, by W. W. Cheyne; Injuries and Diseases of the Urinary Organs, by Henry Morris; Injuries and Diseases of the Testes, Scrotum and Penis, by Henry Morris; Injuries and Diseases of the Female Genital Organs, by J. Bland Sutton.

The above speaks for itself, and comment is needless. We would, however, enjoy seeing an English book on surgery without syphilis and skin diseases being treated in their pages, as they should be confined to where they belong, namely, in a work devoted to them, and are elsewhere out of place.

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OVER THE HOOKAH; THE TALES OF A TALKATIVE DOCTOR. By G. FRANK LYDSTON, M.D. Chicago. Fred. Klein Company. 1896.

Many a weary hour may be pleasantly passed in reading the stories of this versatile member of our profession. He presents dialect stories,

serious reveries, sad, joyous or heroic tales of experiences, which come into many a physician's life, but which few of us have the ability to tell well. The style is broad and not tiresome. We think, however, that not many medical men will be tempted to enter upon this kind of work. The publisher's work is excellent.

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A TREATISE ON SURGERY. Edited by ROSWELL PARK, A.M., M.D. In two volumes. Philadelphia, 1896. Lea Brothers & Co., publishers.

This treatise on surgery certainly does much credit to the American profession, and is a very valuable addition to medical literature. The first volume is devoted to surgical pathology and diseases, surgical principles and methods and minor procedures, injury and repair and surgical affections of the tissues and tissue systems. The second volume considers the surgery of regions.

The contributors are: Wm. T. Belfield, H. L. Burrell, Duncan Eve, J. A. Fordyce, F. H. Gerrish, W. A. Hardaway, H. A. Hare, J. M. Holloway, H. H. Mudd, C. B. Nancrede, Roswell Park, John Parmenter, Joseph Ransohoff, C. P. Smith, Edmond Souchon, A. D. Bevan, C. J. Blake, E. H. Bradford, C. S. Bull, D. B. Delavan, F. S. Dennis, J. H. Etheridge, A. Gerster, C. B. Kelsey, R. W. Lovett, Rudolph Matas, C. B. Parker and M. H. Richardson.

The most excellent feature of the work is the pathology, which is remarkably well set forth. The plates are fairly good, but many of the figures are well done, while the paper, printing and binding are very superior in quality.

We can but most highly commend this work to both students and practitioners as a most reliable guide. In closing we extend our hearty congratulations to the editor on the fine contributions to surgery that he has inserted in the pages of this treatise, as well as for his able selection of his contributors.

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TWENTIETH CENTURY PRACTICE OF MEDICINE. Vol. X. New York, 1897. Wm. Wood & Co. publishers.

This volume is devoted to the diseases of the nervous system and is to be particularly noted by the list of its distinguished contributors, which is as follows: Sanger Brown, Chicago; Joseph Collins, Bernard Sachs and Charles L. Dana, of New York; Charles S. Fere, of Paris and Howell T. Pershing, of Denver.

The present volume retains the high excellence of those which have already appeared.

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THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY. Edited under the direction of GEO. M. GOULD, M.D. Philadelphia, 1897. W. B. Saunders, publisher. Price, \$6.50, cloth. For sale by subscription. Address the publisher.

As we remarked, when reviewing the issue of 1896 of this most valuable work, it is certainly the best compendium of medical progress with which we are acquainted, and this issue of 1897 is quite as good as the preceding year's volume.

It is a book that every surgeon and physician should possess, and will be found invaluable to all those who contribute to medical literature or are engaged in the teaching of students.

The book is well printed, bound and illustrated, and we trust that it may receive the high appreciation that it justly deserves.

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ANOMALIES AND CURIOSITIES OF MEDICINE: Being an Encyclopedic Collection of Rare and Extraordinary Cases, and of the Most Striking Instances of Abnormality in All Branches of Medicine and Surgery, derived from an Exhaustive Research of Medical Literature from its Origin to the Present Day, Abstracted, Classified, Annotated, and Indexed. By GEORGE M. GOULD, A.M., M.D., and WALTER L. PYLE, A.M., M.D. Imperial Octavo, 968 pages, with 295 Illustrations in the Text, and 12 Half-tone and Colored Plates. Philadelphia. W. B. Saunders, 925 Walnut Street; 1897. Prices: Cloth, \$6.00 net; Half Morocco, \$7.00 net. Sold only by Subscription.

In a former issue of the *ANNALS* we gave a notice of the forthcoming appearance of this large work and at that time explained its object. We can now say after examining it, that it has fully come up to our expectations and is a work that is full of interest to all engaged in the practice of medicine.

# ANNALS OF GYNECOLOGY AND PEDIATRY.

VOL. X.

JULY, 1897.

No. 10.

## ORIGINAL COMMUNICATIONS.

### VENTRAL HERNIA RESULTING AFTER ABDOMINAL SECTION, AND ITS TREATMENT.\*

ANDREW F. CURRIER, M.D.

THE great number of cases of ventral hernia which were observed a few years ago as the sequel of abdominal section, happily led to a careful revision of the *technique* of closure of the abdominal incision and to various modifications of the same.

The substitution of the vaginal for the ventral avenue of approach in the surgery of the abdomen and pelvis, on the part of many surgeons, has still further tended to limit the number of accidents of a hernial character. There are still many surgeons, with more or less experience in the vaginal method of operating, who are unwilling to abandon the tried and satisfactory incision through the abdominal parietes. Into the merits of this controversy, however, I do not

propose to enter at this time. There will probably remain a large number of cases, in any event, in which it will always be deemed preferable to use the abdominal incision, either central or lateral, no matter what our prejudices or preference may be, and hence the possibility of future hernias. Especially will those cases be exposed to this risk in which an incision in the loin is requisite, the muscle and fascia often affording less protection in this locality than in the central portion of the abdomen. This subject, therefore, cannot be dismissed as one which is deficient in practical utility.

The cause of ventral hernia is by no means identical in all cases. It may be due to imperfect apposition of homologous structures, to an insufficient number of supporting sutures,

\* Read before the American Gynecological Society at its meeting in Washington, D. C., May 5, 1897.



or to too large a number, to premature removal of the sutures, to insufficient protection of the abdominal wall after the patient has left her bed, to undue strain and tension upon the tissues involved in the wound, or



FIG. 1. (Profile.) Variety 1, simple.

to defective vitality in these tissues. It does not follow that hernia implies imperfect *technique* on the part of the surgeon, for it may occur when no flaw of such a character is demonstrable. It is well to recall, in this connection also, that with the occur-

rence of the menopause which follows many of the operations in which the abdominal parietes are divided, there is a tendency to unusual development of adipose tissue in that portion of the body, and sometimes to fatty degeneration of structure as well.

When such a condition occurs in women who are obliged to work hard and continuously to earn their living, especially if they work in an elevated temperature, and are addicted to the excessive use of alcohol, hernia may be expected to result in no small percentage of cases. Such hernias are not directly attributable to faulty operations, and cooks, laundresses, and scrub-women have occupations which render them very susceptible to the accident.

A tendency to hernia is present in the tuberculous, the syphilitic, and all others whose tissues are essentially depraved and deficient in resisting power, and the same is true of those with whom the line of union has been weakened by the use of the drainage tube, or the gauze packing, or with whom the union has been by granulation after more or less extensive suppuration.

There are three varieties of hernia which I have observed as the sequels of abdominal operations which may be denominated (1) the simple, Fig. 1; (2), the multiple, Fig. 2, and (3), the massive, Fig. 3. This distinction becomes necessary for the treatment, at least in my experience, differs for each. The order in which the tis-

sues separate in the development of hernia is immaterial, indeed I do not know that any observations upon this point have been recorded. What has been observed is that the muscles and the firm sheath of fascia split apart when the *vis a tergo* becomes sufficient, and the peritoneum, usually, but not always intact, with the abdominal contents which are behind it, are projected forward into the opening. The peritoneum, if unruptured, soon becomes adherent to the skin, while the omentum and intestines may or may not adhere to the peritoneum. The danger of strangulation with this form of hernia is not great, the danger is rather that the rent in the abdominal wall will increase in length and the volume of the hernial sac increase proportionately. In the simple variety of ventral hernia (Fig. 1), the lateral retraction and stretching of the muscles and fascia progress, there is a decided development of connective tissue binding the structures firmly together, and very often the formation upon the abdominal wall of a thick overlying mass of fat, so that the muscles are entirely buried from sight until the fat is dissected away. The muscles, as a rule, do not lose their function, and except for the weakening of the abdominal wall and the sense of insufficient support at the seat of the hernia, the patients may not be conscious of any great inconvenience or pain. Indeed, the discomfort is sometimes so inconsiderable that it is frequently difficult to

persuade them to submit to an operation to restore the structures to their normal anatomical relations.

In the second variety of ventral hernia (Figs. 2 and 4), the conditions are more complicated. It oc-



FIG. 2. (Profile.) Variety 2, multiple.

curs in women with weak and flabby tissues, and with general tendency to the development of adipose. There is great retraction of the muscles and fascia, with fatty degeneration, the muscles being pale and poorly nourished and the fascia thin and yield-

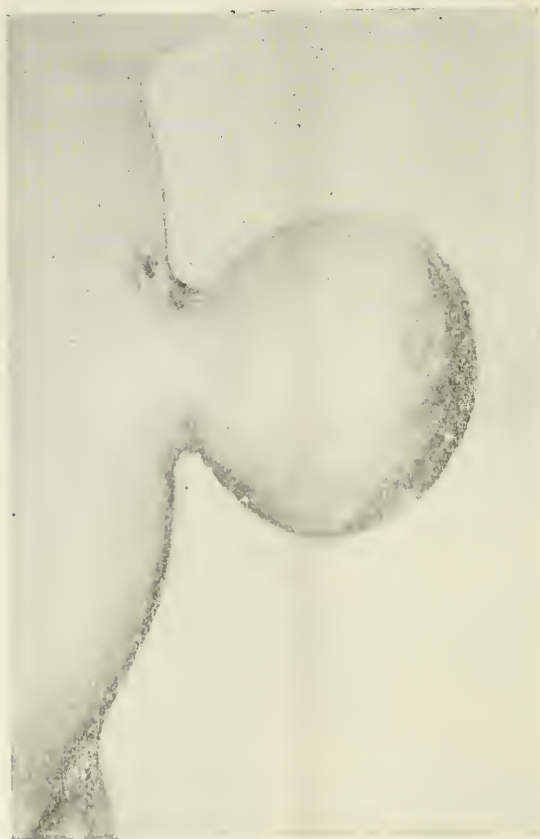


FIG. 3. (Profile.) Variety 3, massive.

ing. The hernia is not only in the central line, but in more or fewer locations in other portions of the abdominal wall. The reduction of these various herniæ and the dissection and resection of the redundant and unnecessary tissues is a task which consumes much time and patience. Fortunately, this variety is the least frequent of the three. It gives rise to a very decided sense of weakness and insufficiency in the abdominal wall, and may entirely incapacitate a woman from earning her living. It is al-

so not devoid of danger, for strangulation in the accessory pouches is an ever present possibility. (See Figs. 2 and 4.) The massive variety of ventral hernia (Fig. 3) is sufficiently indicated by the name. It includes all cases in which the hernial pouch is of the size of a child's head or larger. It may occur from the sudden rending of the entire scar which results from the abdominal wound, or by gradual development from the simple variety. When the process is gradual and the perito-

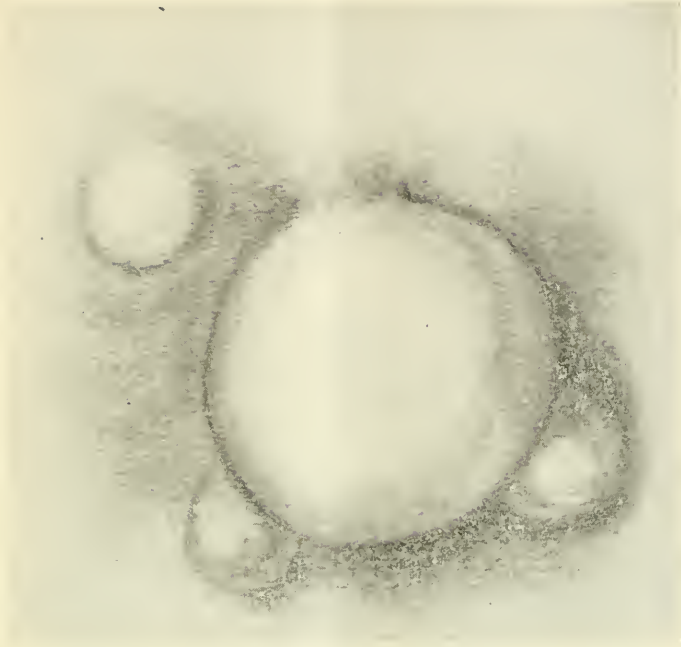


FIG. 4. (En Face) Variety 2, multiple.

neum has ruptured, a well-marked ring of fibrous tissue may be developed at the peritoneal border (Fig. 5). The contagious peritoneum may also undergo great thickening, and folds and pouches innumerable may make the situation a complicated and perplexing one. The intestinal mass may be reducible or irreducible; in the latter case the contour of the entire abdominal cavity undergoes change, and it is possible that the function of the intestines may suffer modification. The development of a great mass of fat adds to the difficulty, and presents a very knotty problem for solution.

The question naturally arises whether it is proper in all cases of ventral hernia to advise the patient

to submit to an operation for its relief. In my opinion this question should always be answered affirmatively. The discomfort from the hernia may be slight and the danger of strangulation small, but it is almost certain that the same or a similar force which produced the original rupture will enlarge and extend it.

Such a process may be gradual, but it is difficult to understand how it could fail to take place if the patient occupied herself with the ordinary avocations of life. With hard-working women, the volume of the hernia usually increases rapidly, especially if they are careless as to the protection of the abdomen by a suitable bandage.



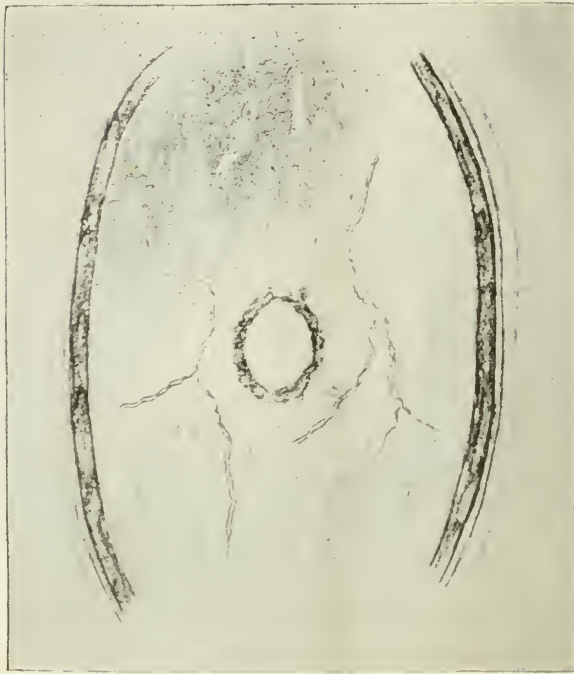


FIG. 5.

The symptoms of ventral hernia are so similar to the well-known symptoms of intestinal hernia in other locations, that it would be superfluous to say more than that they vary from absolutely no discomfort—in the simplest cases, to complete incapacity for ordinary muscular toil in the most severe.

The occurrence of this accident naturally excites the attention of the patient from its very conspicuousness. Should she then consult a physician who is without surgical tendency or experience, he would probably recommend the use of a bandage or truss. Such advice, which might be entirely suitable for an or-

dinary inguinal or femoral hernia, would not be appropriate for the variety which is now under discussion. In the former case, the intestine has escaped through a natural passage, in the latter, through one which is artificial, and the line of rupture is prone to extend until the original wound is reopened, or a fissure of even greater extent produced. Hence prudence and common sense dictate the radical surgical treatment of the injury at the earliest practicable moment.

The surgical treatment of ventral hernia in its earliest stage is simple enough; the old wound should be refreshed throughout its entire extent

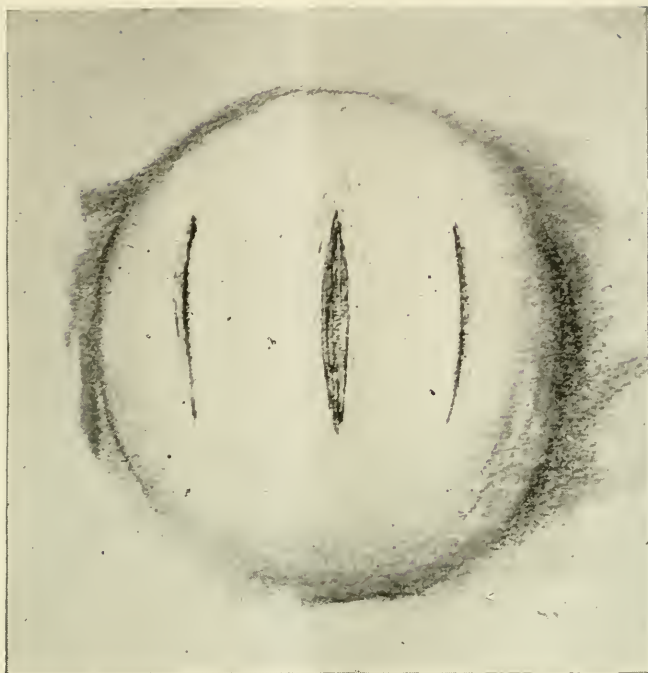


FIG. 6.

unless it is quite evident that the tissues are perfectly strong and secure—above and below the hernial opening. The retraction of muscles and fascia is then only moderate, and it is an easy matter to bring homologous tissues into apposition. It is quite possible to pass the ligatures through all the tissues, including the peritoneum, without opening the peritoneal cavity, until they have been passed. This implies, of course, the certain knowledge that none of the abdominal viscera are in immediate contact with the peritoneum and the peritoneal sac **must** be cut off before the ligatures are tied. In the more voluminous hernias which have been developing

during months and years, and **in** which the retraction of muscle and fascia has been considerable, the **task** is more difficult. In these cases it is well to open the peritoneal cavity at once. It may not be possible to locate the retracted tissues by palpation from without, but they can be readily found by palpation from within. Once found, they must be dissected out, superfluous peritoneum, fat, and connective tissue removed and homologous structures approximated. If after free dissection the tension upon the approximated tissues should be great, this tension must be relieved by appropriate longitudinal parallel incisions in the contiguous tissues (Fig. 6). In the

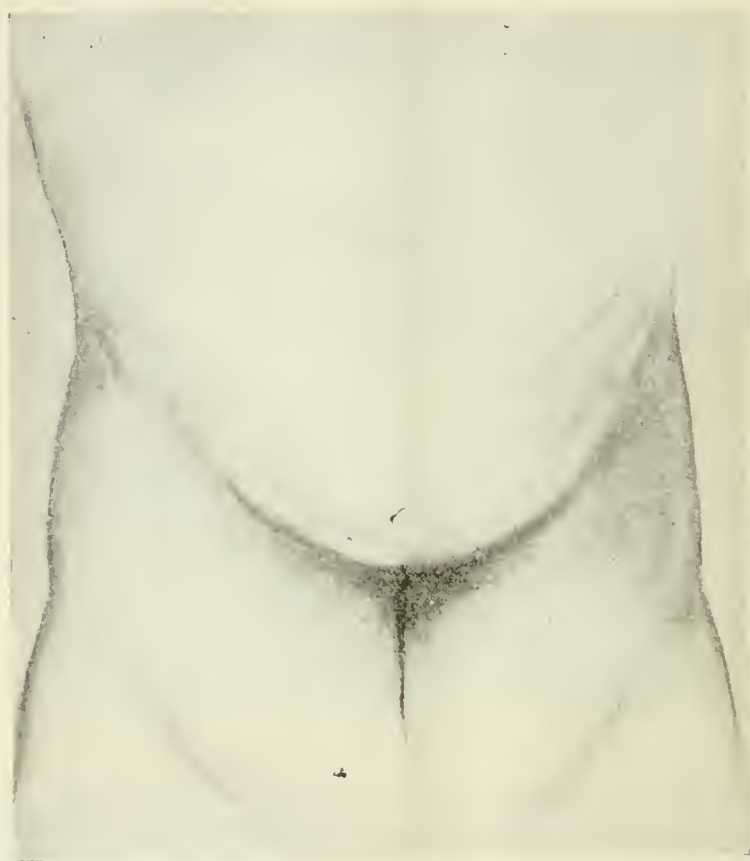


FIG. 7.

massive variety of hernia, the liberation of the muscle and fascia with its attendant extensive dissection by no means completes the preparation of the tissues for reunion. The hypertrophy and redundancy of the peritoneum in such cases may be enormous.

As was observed in a previous portion of this paper, this variety furnishes us with a well-marked fibrous ring (Fig. 5), if the original rupture involved the peritoneum. The strength of this ring may be great

and beautifully illustrates nature's conservative efforts to replace the normal protection to the abdominal viscera. This ring must be entirely removed, the folds and reduplications must be smoothed out and drawn towards the abdominal opening as a centre, and all excess must then be trimmed away in order to restore the normal anatomical relations. The peritoneal hypertrophy may be attended with the development of very large veins which should be ligated before the tissue is excised (Fig. 5).

By no means the simplest part of the operation consists in the removal of the excessive accumulation of fat which is present in many cases. Failure to exsect it sufficiently in all directions from the wound will, by exerting too much tension or pressure upon the wound, endanger its permanent integrity. A great fold of fat constantly protruding is very unsightly and must also be a source of more or less discomfort (Fig. 7).

In the multiple variety of hernia the opportunity for effective work upon the weakened and degenerated tissues seldom exists. The tissues are all in a bad state of nutrition, the recti muscles may have disappeared to so great an extent that it would be well nigh impossible to bring them into apposition, and the fascia is so friable, that it is best to interfere very little with it. I have contented myself in such cases with laying bare the central hernial sac, removing it and the pouches which are contiguous to it, and then closing the wound, uniting such tissues as could be brought into apposition without great tension. Other hernial protrusions are then treated in a similar manner, the incisions being in lines parallel to the central incision.

One of the most important features in connection with this operation has to do with the suturing of the wound. The object in view is to bring the freshened tissues into contact so accurately and keep them in contact so long that when the supporting sutures are removed the un-

ion will be as firm as could ever be expected with the conditions which are inseparable from the individual.

Experimentation with the various substances which have been employed for suture material, has satisfied me that worm-gut in the greater number of cases, fills the requirements more completely than any other.

Numberless cases of infection with catgut, however prepared, render it at least of doubtful safety for long sojourn in the tissues. Metallic sutures have the very desirable property which resides in a permanently aseptic material, but they are not sufficiently pliable for manipulation as other suture material may be manipulated.

Silk may become infected within the tissues though it may have been sterile when introduced. Worm-gut may also become infected and irritating, but this occurs less readily than with other sutures of animal material, and in my experience the number of cases has been very small. This has led me to repose greater confidence in its innocuousness than in any other animal suture. If too much of it is used in a given wound the nutrition of the tissues will be impaired, and I have seen troublesome dermatitis without suppuration, caused by four tiers of such sutures in a thin abdominal wall. The extreme limit of tolerance of this material by the tissues, in my experience has been three to four weeks. When retained for a longer period it becomes hard and irritating,



and suppuration may ensue. Experience which demonstrated this fact long since convinced me that it was not adapted for permanent use as a buried suture. Soft tissues like the fat, the muscle and fascia which have undergone fatty degeneration, and the skin in alcoholics and others with whom the general physical condition

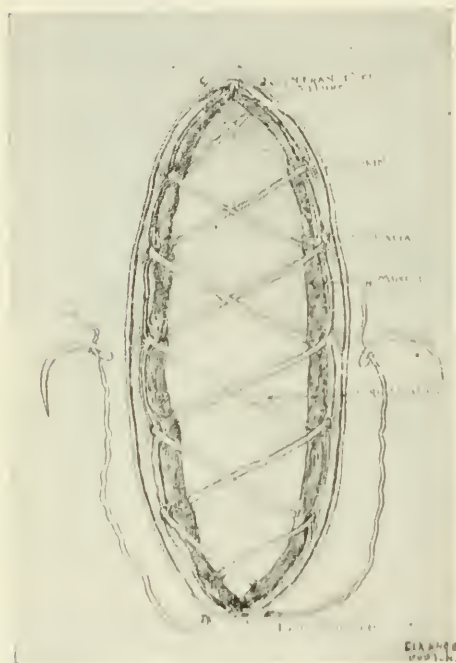


FIG. 8.

is depraved do not sustain favorably the tension of tightly drawn sutures. For such cases the metallic sutures, especially silver wire of rather coarse drawing, furnish a better and more enduring support than even the worm-gut. Necessarily they must be interrupted, rather than continuous, and if they can be retained two weeks or longer

without cutting the tissues, the result will usually be favorable. Such sutures should include all the tissues in the abdominal parietes, should be passed at intervals of a third of an inch, and additional sutures between them should include the skin, subcutaneous fat and the sheath of the recti muscles if the latter can be liberated and brought to the central line. For hernias in which the wound is not more than four inches long, I have adopted a method of suturing which has given satisfactory results in a number of cases. It is a continuous suture, a modification of the buried suture, and suggested itself in view of the advantages to be derived from prolonged support of the tissues and the disadvantages of the permanently buried suture. I have used it as a tier suture, that is with separate inclusion of the peritoneum, another separate inclusion of the skin and subcutaneous structures, endermic, and a third tier including the muscles and fascia. The peritoneal suture has been discarded as unnecessary and superfluous, and instead of the endermic suture, a continuous cutaneous one may be used if it is preferred except in cases in which the tissues to be united are very voluminous, when it will be better to use an interrupted one including the skin, muscle and fascia. The essential suture is therefore the one which enters the abdominal parietes just beyond the upper angle of the wound, traverses the tissues below the skin and subcutaneous fat.

from end to end of the wound, and emerges just below the lower angle. If the wound is not more than three inches long, only one suture, of this character, will be required (Fig. 8). If it is longer than three inches two sutures are preferable, one of them beginning beyond either angle, and both terminating near the center (Fig. 9). It is obvious that the longer the sutures the more difficult will it be to pull it out through the various tissues which it has engaged.

I first began to use this form of suture about a year and a half ago, and the method of introducing it is as follows: A strand of coarse worm-gut twelve inches or more in length is inserted at its ends into two strong, curved needles sufficiently long to penetrate all the tissues of the abdomen. Both needles are introduced into the abdomen just beyond the upper angle of the wound about half an inch apart, from without inward. The sides of the wound are then brought into apposition by successive stitches of continuous suture, including peritoneum, fascia and muscle, from below upward, and then from above downward, changing the needle to the opposite side with each successive stitch, precisely as one would lace a shoe. The suture must not be drawn too tightly, for that would pucker the tissues. If two sutures are to be used, *i. e.*, one for each half of the wound, the ends of each must penetrate all the tissues, including the skin, and emerge near the middle point of the wound. After

these ends have been tied, each to its appropriate fellow, the gaping skin is to be closed by continuous or interrupted suture whichever seems the more suitable, as has already been remarked. A minor point which is not without practical importance consists in protecting the skin at the beginning and end of each suture by a thin

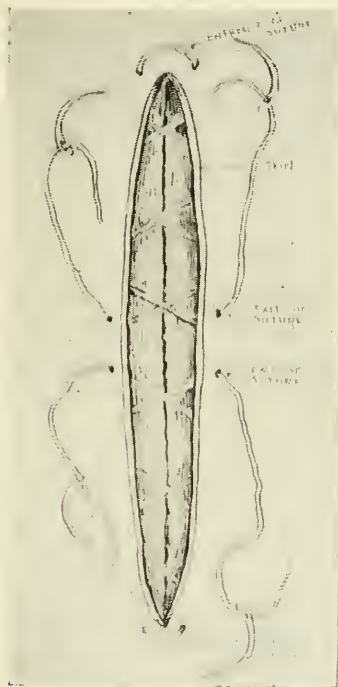


FIG. 9.

strip of gauze which is passed under each loop. The wound may be sealed with iodoform collodion, or not, as preference may dictate; I have found it useful. The dressings which cover the wound may remain unchanged, if the case proceeds normally, for two weeks. They are then removed and with them the superficial sutures. If

the deep sutures are causing no trouble they may remain two weeks longer. By this time the tissues will be as firmly united as they will ever be, and the sutures are not only no longer useful but act as foreign bodies which may cause trouble at any moment. To remove them the ends which were tied are cut, the loop at the initial points is gently pulled and with moderate traction each suture is removed. If the tissues offer great resistance to their removal, cutting the loop and drawing on each end separately will facilitate the opera-

tion. An anæsthetic should be given if severe traction becomes necessary, but such an emergency is infrequent. I have usually removed them with very little trouble and without the infliction of severe pain. The patient is kept in bed while the sutures are *in situ* and for a few days after their removal. As an additional safeguard I prescribe the wearing of a suitable number of straps of rubber plaster over the abdomen until the function of the tissues in their renewed conditions is fully established.

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## PELVIMETRY: ITS VALUE IN OBSTETRICS.\*

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THE value of Pelvimetry is a subject which interests the general practitioner as well as specialist. It is he who sees the most obstetrical work, and it lies in his power to detect the existence of pelvic deformities, before it is too late to prevent the serious results which so frequently occur when they are present.

This is not a new subject, though, as one writer has said, "It is still in its infancy in America." Until the close of the seventeenth century, obstructions to labor arising from the pelvis were thought to be due to its failure to expand. Heinrich von

Deventer first showed the falsity of this theory in 1701 by demonstrating the existence of anomalies of the pelvis. In 1718 Pierre Dionis showed the relation between rachitis and deformities of the pelvis. About 1756 Smellie estimated the conjugate diameter, and in 1775 Baudelocque measured it with a pelvimeter bearing his name. Among the many who have added to the knowledge of the subject, Michaelis, in 1851, and Litzmann in 1861, contributed the most towards showing its practical value.

One of the serious drawbacks to the general practice of pelvimetry has been the want of an instrument which will span sufficiently, be cheap, and

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easily carried. Many models have been devised which are suitable for hospital, but impracticable for general use. I have found Martin's a valuable instrument. Collyer's is smaller and cheaper; I fear, however, it is not so accurate. Harris's I imagine is valuable, though I have not seen it. For externo-internal measurements, Skutsch of Jena and Hirst of Philadelphia, have devised instruments, but they are only practicable for hospital work. There is still room for a pelvimeter which will meet all requirements.

Probably the most general reason given for not measuring pelvises is, that but few American women have deformities. If this is true, we still have thousands of women from countries in which, according to Michælis, Litzmann and Schroeder, deformities are found in 14 per cent of the women confined. We are not, however, in a position to say that but few American women have deformities, for enough pelvises have not been measured to prove such claims, and when statistics have been collected, the per cent does not fall very far behind that of other countries.

That we may know the real significance of measurements in a given case, we must have some standard with which to compare them. This is usually given as follows: Between the iliac crests 28 C.M., between the iliac spines 25 C.M., external conjugate 20 C.M., conjugata diagonalis 11.5 C.M., and conjugata vera 10 C.M. What deviation from these shall

constitute a deformity is a question about which opinions differ, but we will be safe in adopting the German standard that a pelvis with an external conjugate of 18 C.M., and a true conjugate of  $9\frac{1}{2}$  C.M., is contracted.

Again, we must have a common method of taking the measurements. The first to be taken and frequently the only ones needed, are the distances between the iliac crests, between the anterior superior iliac spines and the external conjugate. For the first two, the patient should lie as quietly as possible on her back, with legs extended and close together. The points of the pelvimeter are placed against the external surface of the spines at about the insertion of the sartorius muscle, and the distance between them noted. They are then moved back till the widest point between the crests is found, measuring from the external border. If the distance between the spines is greater than between the crests, place the points of the pelvimeter about two inches back from the spines. If the points of the pelvimeter are placed on the spines, they should be placed on the crests also. This will not be as exact, however, as when applied to the external borders, for the inner borders or centre of the crests are not easily accessible.

For the external conjugate, the patient lies on her side with legs flexed. One point of the pelvimeter is placed in the depression beneath the spine of the last lumbar vertebra and the other on the centre of the upper bor-



der of the symphysis pubis. Only slight pressure is needed, and there should be no pain. If the proper relation between these measurements exists, it is not necessary to look further. If not, the internal conjugate must be taken. For this the patient should lie across the bed with her hips slightly raised. Introducing the first and second finger, we try to reach the promontory of the sacrum. If successful, the end of the finger is placed against it, the hand raised till it touches the lower border of the symphysis pubis, and the point of contact marked with a finger of the other hand. The distance is measured with the pelvimeter. This is the conjugata diagonalis, and the vera is estimated by deducting  $1\frac{1}{2}$  to 2 C.M., according to the width and angle of inclination of the pubic bone. In fleshy patients, from one-half centimeter for the transverse to two centimeters for the anterior-posterior diameters are deducted. In exceptional cases where one of the rarer deformities is present, other measurements, internal and external, will be necessary to determine the exact condition. These cannot be discussed now.

What can be learned from the three external measurements? As has been said, their significance lies in the relation they hold to each other. If the distance between the spines approaches or exceeds that between the crests, and the external conjugate is shortened, a rachitically flattened pelvis is probably present.

An example of this is seen in the following case:

The patient was 32, this being her fifth labor. The first four, one of which was a twin pregnancy, were terminated with forceps. The external pelvic measurements were:

Iliac crests..... $25\frac{1}{2}$  C.M.  
 Iliac spines..... $26\frac{1}{2}$  C.M.  
 External conjugate..18 C.M.

The distance between the crests is shortened and that between the spines increased, and greater than between the crests. The external conjugate is shortened. The case was a slightly flattened rachitic pelvis. Treatment was expectant, and after 13 hours, a living child was born without instruments.

The following is a generally contracted rachitic pelvis seen in a deformed woman suffering from scoliosis of the dorsal vertebræ, and paralysis of both legs due to injury after birth.

Her first two pregnancies were terminated by producing premature labor. I saw her only a day or so before the expected time of confinement, and decided to wait for developments, especially as examination showed that the child was probably small. Pelvic measurements were:

Iliac crests.....20 C.M.  
 Iliac spines..... $19\frac{1}{2}$  C.M.  
 External conjugate.. $14\frac{1}{2}$  C.M.  
 Diagonal conjugate.. $10\frac{1}{2}$  C.M.  
 True conjugate.....9 C.M.

All the diameters are less than normal and do not have the proper rela-

tion to each other. Treatment was expectant, and after a labor of 24 hours, she delivered herself of a 6 $\frac{3}{4}$ -pound child.

Where the transverse diameters are normal or longer than the standard, and the external conjugate is considerably lessened, we probably have a simple flat pelvis. The true conjugate of these usually ranges from 8 to 9 $\frac{1}{2}$  C.M., the majority of the cases being only slightly flattened.

The following two cases illustrate the two extremes:

The first was a primipara of fairly heavy build.

External measurements were:

Iliac crests.....31 $\frac{1}{2}$  C.M.  
Iliac spines.....29 $\frac{1}{2}$  C.M.  
External conjugate.19 $\frac{1}{2}$  C.M.

Diagonal conjugate could not be accurately estimated, as the head was at the inlet. Deducting  $\frac{1}{2}$  C.M., from the transverse, and 1 C.M., from the conjugate for obesity, the measurements are 31 C.M., 29 C.M., and 18 $\frac{1}{2}$  C.M., and are far from having the proper relation to each other. I saw the case with Dr. H. C. Long to consider the question of delivering with forceps. The patient had been in labor 48 hours when I saw her, and though tired out, had a good pulse and normal temperature. The foetal heart was excellent. Morphine, to give rest to the mother and help relax the slowly dilating os, resulted as we wished, and a live child was delivered nine hours later without the use of instruments.

The second case had the following measurements:

Iliac crests.....30 C.M.  
Iliac spines.....27 $\frac{1}{2}$  C.M.  
External conjugate 17 C.M.  
Diagonal conjugate..9 $\frac{1}{2}$  C.M.  
True conjugate.....8 C.M.

Here the transverse diameters are increased and the conjugate decreased, characteristic of simple flat pelvis. The patient had been in labor 24 hours and was in good condition. The foetal heart was also excellent. There was a sudden profuse hemorrhage which placed the mother in a dangerous condition, and as subsequent events showed, caused the death of the child. At this time Dr. Robert Pollock, who had charge of the case, asked me to see her. When I arrived, her condition had been somewhat improved by stimulation. A previous very difficult delivery with high forceps suggested version as the probable treatment. Examination showed the os to be dilated, membranes intact, head movable above the brim, and promontory of the sacrum easily felt. Introducing the hand, breaking the membranes and reaching for a foot, showed that there was but little space for turning, and that the cord was pulseless. This last, as the mother's condition was fair, changed the indications decidedly. The head was perforated, and an eight-pound child delivered with the cranioclast. The biparital diameter, as near as could be estimated, was 9 $\frac{1}{2}$  C.M., which would not pass

through a conjugate of 8 C.M. The mother made an excellent recovery. I should say, perhaps, that the external measurements were not taken till the mother was able to be up again.

I might give other examples when expectant treatment was followed by the use of forceps, but these sufficiently illustrate the value of measurements.

An important question is, what is the relation between the size of a woman's pelvis and her stature? While we may find a pelvis with the standard measurements in both tall and short women, there is generally a correspondingly small pelvis in small women. Will the diameters of such a pelvis approach those of the *justo minor aequilabiter* pelvis, or will their relations to each other be such as to lead to a suspicion of flattening and still be really normal for such a pelvis, offering no obstruction to labor? This is a question which has frequently occurred to me. As a rule, opinions are very indefinite as to what these diameters should be. Schroeder is the only one I have found to give definitely what the dimensions of a *justo minor aequilabiter* pelvis should be, and places them at three centimeters below the standard. Such a pelvis may be found in a woman of any build. But take a woman of small stature, should we not expect that, instead of the diameters keeping up the relation to each other that the standard diameters do, or instead of their being proportionately smaller, in which case we must class the pel-

vis with the *justo minor aequilabiter* pelvis, should we not expect that they will show a different relation to each other? I believe this is so, for I have examined many pelvis with such diameters, was not able to discover any signs of deformity, and when labor came on there was no obstruction.

Dr. P. A. Harris of Paterson, N. J., has devised a chart representing "Pelvis of normal conformation," which, if it stands the test of general use, will answer this question and be of value in determining what the relation of measurements in different sized pelvis should be. By it he shows not only that the distance between the crests is three centimeters greater than that between the spines, in the standard measurements, but that when the distance between the crests is 24 C.M., the difference should be 1.8 C.M., and where it is 30 C.M., the difference should be 3.6 C.M. With this chart when any one of the four measurements is given, the others and their right relation to each other can be obtained. In reply to a letter of inquiry, Dr. Harris says he has seen no reason to modify the chart. In any case, if a doubt exists as to what the relations between the external measurements really indicate, we must resort to careful internal measurements.

We will find that in some cases of apparent shortening of the external conjugate, there is in reality none. Pershing gives the following table which is a good estimate of the prob-

abilities for conjugates of different lengths:

A diameter of 16 C.M. will give shortening.

A diameter of 16-18 C.M., will probably give shortening.

A diameter of 18-20 C.M., chances are equal.

A diameter of 20-21 C.M., shortening improbable.

A diameter of 21 or more C.M., safe.

In all our estimates of probabilities in given pelves, the child's head, which is a most important factor, is an uncertainty. As yet there is no accurate means of estimating its size, but valuable information can be gained from the ease or difficulty with which it is made to enter the brim of the pelvis.

That which interests us the most is the practical worth of pelvimetry. To secure its full value, the pelvis of every primipara and of those multiparae in whom a previous labor has been difficult, must be measured as early as possible before the time of labor. To realize how this can be of value, we must inquire what happens where an asymmetrical pelvis is present, and we are ignorant of it. The mother's suffering is prolonged. She is subjected to the dangers of infection and injury from frequent examinations and attempts to deliver. By the time a suspicion that something is wrong arises, and when the cause of obstruction is discovered, she must undergo a severe operation when her powers of resistance are the lowest.

This does not apply alone to Cæsar-ian section, or symphyseotomy, but as well to high forceps operations, which at best, are dangerous, and, in the hands of some, fatal. An early knowledge of the true condition would give an opportunity for some prophylactic measure of a less degree of severity.

But this is not all. The child must have greater consideration than it does. It is remarkable how generally its claims for attention are disregarded. Next to pelvimetry there is no one thing more generally neglected than examination of the fetal heart, this, too, when it is the only indicator as to whether the labor should be terminated to save the child's life. It is no wonder that statistics show such high fetal mortality during or immediately following birth. In a paper read before the Ohio State Pediatrical Society on "Injuries received by the child during birth," I gave such statistics and the opinions of prominent obstetricians and neurologists that large numbers of cases of cerebral palsy and idiocy in children are due to asphyxia or intracranial hemorrhage following protracted labor. Playfair says one in every five cases of slightly contracted pelves will result in a still-birth. Lusk quotes statistics showing 53 deaths in 407 cases of slightly contracted pelves where birth was spontaneous. Schroeder says 50 per cent will die where the pelvis is contracted sufficiently to indent the head of the child. Prolapse of the cord is a fre-



quent complication of contracted pelvis, and is fatal to the child in 37 to 53 per cent of the cases. Such facts, many more of which might be given, demand attention. I do not claim that all protracted labors are due to contracted pelvis. I believe, though, that many more are than is generally supposed, and especially where the pelvis is only slightly contracted. These last will prove more dangerous to the child than mother. If we wait till a protracted labor, which has exhausted the mother, suggests the cause of delay, it will probably be too late to save the child, and if it is born alive, in many cases it dies in a few days from the result of the labor.

Clearly our duty is to know *early* whether a contracted pelvis is present or not. If it is, we can treat the case intelligently and according to the extent of contraction. If it is slight, treat expectantly as in the cases reported, and make it a point in every case to frequently examine the fetal heart. If the contraction is more marked, then some prophylactic measure, as producing premature labor or version, can be adopted, or if symphyseotomy or Caesarian section is chosen, it can be done when the mother's and child's condition are the best, and the mortality will not be as high as now. In the last case reported, a knowledge of the measurements will be a great safeguard in case of another pregnancy, and either premature labor should be produced, or symphyseotomy performed.

Pelvimetry is not a "cure-all" for

obstructions arising from the pelvis. Even though it is known early that a deformity exists, unfortunate results will sometimes follow. These cannot be prevented perhaps. They, however, are simply the exception to prove the rule that the pelvis of every primipara and of those multiparæ in whom there has been a difficult labor, should be measured as early as possible before labor begins.

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## LACTATION.\*

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IN presenting to the members of the Society this evening the general subject of lactation and infant feeding, I wish in the beginning to disclaim all purpose of trying to bring before you anything more than a few commonplace thoughts on the subject, having no hope of bringing forward anything new, but rather trusting that some suggestions thrown out may lead to discussion and interchange of experiences which may result in benefit to us all.

The text which has led me to write on the subject is furnished by the remarks of Professor Hadley of Yale, who has recently said that there must be either a lesser number of babies born into this world, or else there must be some improvement in the arts of food supply, and he fails to see how the latter alternative is to be realized to an extent corresponding with the increasing birth-rate.

As the years advance, as far as my experience with the practice of medicine is concerned, it is more and more a harder problem to solve how

to bring up the constantly increasing numbers of infants, and it strikes me that the number of children who are dying yearly of inanition and marasmus, and slow starvation is becoming every year greater in proportion to the number of children born. I am finding every year more and more that the number of mothers among the better class who absolutely refuse to attempt to nurse their infants, is becoming every year greater in number. They do this, not from an insufficient supply of milk but because they prefer to mingle in society, attend parties, dances, and follow up the unyielding demands of society life, taking up with the idea that a baby does well enough on a bottle. To my mind, this is in many instances very criminal, and heartless, and the physician should, unless there are circumstances to contraindicate it, use his or her influence and authority against it as being at least dangerous to the child. On the other hand, among the poorer classes of people who have no society to trouble them, it is to be said to their credit to a great extent they make the attempt at

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least to rear their children at the breast, oftentimes even at the expense of their own strength, and often again, when their own nutrition is so poor that it would seem to have been far better to have tried artificial means both for mother and child. It may be a more maternal instinct, or it may be the lack of means to provide artificial food; and the uncertainty of having time to prepare it may have had something to do with it. It looks very much as if nursing of the infant will, in the not distant future, become a lost art; it certainly will if the new woman, so much written about, prevails.

We will assume that first of all, in principle at least if not in fact, that the infant, like the lower animals, should be nourished by the milk of the mother. This is the way which Nature has provided. And in the lower animals this method is their only salvation. Here we can have no dodging the issue by the mother. No attempt at artificial diet, unless in a few cases where the mother has died. While I believe that we should insist on the mother nursing the infant, all things being right for it so to do, yet there must be exceptions in some, and possibly many cases, to this proposition, and we ought to bring to bear good judgment in each case as to whether it is safe for the child to nurse or not. There are many mothers who, while they have milk, yet have so poor and meagre nutrition themselves that for a child to nurse means starvation or a

condition similar to so much poison. We cannot expect a healthy child who takes into its system milk that only acts as quenching the thirst. In some far-off deserts there is said to be a plant growing that, while it satisfies the craving of hunger, yet affords not one iota of strength or nutriment to the traveller, and to depend upon it for food is only another way of starving to death. We over and over again hear the mother say to us that she has plenty of milk for her child, yet it is wasting away. Unless we can make that mother's milk richer and nutritious by making the mother stronger, we had better run the chances of bringing up that child on ordinary cow's milk, as is found about in the common stores, than to keep the children longer at that fount which will prove far from being one of the blessings the poet sings of.

Again, we should judge between the mother and the child if there seems to be a phthisical condition. Recent scientific research has shown to us how communicable phthisis may be from the sputa, and from other sources; how much more, then, through the mother's milk may this dread disease be imparted to the infant, which will bring forth evil fruit in the future. Having suspicion of the disease, we ought to forbid nursing at whatever cost. Lewis Smith says that sometimes women prior to pregnancy, present indubitable evidence of tuberculosis, but by the improved general health which attends preg-

nancy, the disease is temporarily arrested. Such women should never suckle their infants. If they do, they soon lose all that was gained, and the disease advances rapidly. These objections apply to the mother; they also apply to the infant; the milk is deficient in nutritious principles; the infants, therefore, will be ill nourished and also probably will develop the disease. Lewis Smith says again that constitutional syphilis in the mother does not contraindicate lactation. It is probable the infant also has it; the mother should take anti-syphilitic remedies which will eradicate the disease in herself, and also if present in the infant. How far this fact is proven, I will not discuss. Many mothers relinquish nursing because the infant cannot readily take the nipple, or because the nipple becomes so cracked and inflamed that nursing is a torture, but nursing for this reason should not be abandoned until all methods have been tried. It may require much patience and many efforts, but there are many instances in which, if the mother persists, in the end the difficulties regarding the nipple are overcome. But there is another side. I had a case recently in which the nipple became much inflamed by the child sucking it. No treatment was of use, and finally the child bit off a large piece of it and it was taken from its mouth. Here, of course, the mother would have been justified in relinquishing nursing long before she did.

The question is generally asked,

how soon should the infant be put to the breast after delivery. Authors differ as to the time; physicians have a variety of ideas on this question. I trust that the members here will give expression to the advice generally given on this question. My own method is to put the child to the breast, provided of course the child has every prospect of being nursed early, within a few hours after delivery when the mother has become somewhat rested. The only advantage is, that it early teaches the child to suck, a thing some children seem slow to learn; it also draws out from the breast the colostrum, which is helpful to the child. And besides, if the child is on the breast, it saves it from being dosed by all the old ladies about by almost every conceivable mixture, such as sugar and water, molasses, oil, catnip, anise, herb teas of all kinds, milk, and the like. Louis Starr says he puts the baby to the breast in from four to eight hours. Other advantages of early nursing are that it induces proper uterine contractions, and draws out the nipples and encourages the secretion of milk; but I think we should be careful and not let the infant draw too long on the tender nipple, as we shall, if not careful, induce an early sore nipple. And this leads up to the point of sore nipples in general and their treatment. A teacher of obstetrics at Harvard, in an address a few years ago on antiseptic midwifery, took occasion to say in substance that "sore nipples ought not to occur, and that



the physician in attendance ought to be held criminally liable for their occurrence." I fail to see how we can prevent, in many cases, this difficulty. Surely no amount of antisepsis and antiseptic washing will, in my experience, prevent a tender nipple from chafing and becoming sore and cracked. Some infants are often very strong in their sucking power, and with their mouth and the edge of the gums a nipple, unless the skin of it is very hard, will easily become chafed and cracked. There are also many cases where a proper amount of cleanliness is wanting, and the mother fails to keep her nipple and the child's mouth properly clean. Then, as before spoken of, some mothers have a habit of keeping their children for hours sucking upon the nipple to keep the child quiet. This, I think, tends to an early worn nipple. Then, to a tender nipple, we have the difficulty: the every nursing the child breaks the tender new skin that may be forming upon the nipple, and so keeps that organ raw. The use of antiseptic and antiseptic washes previous to confinement is to be always insisted on, if possible to have it done.

Having a sore or cracked nipple, the treatment is with antiseptic wash, such as boracic or boric, or boracic acid. Some authors have recommended nitrate of silver in weak solution. My favorite application has been compound tincture of benzoin, in preparation of benzoin 3 drachms, alcohol 20 grains, glycerine or

castor oil 4 drachms. Another very useful application is cocoa butter, allowing it to dissolve as it is rubbed upon the nipple: vaseline is also much used with sometimes beneficial effect. I have also been in the habit in very sore nipples of applying a nursing shield.

There may be some question as to the advisability of this on account of the liability of the rubber covering the mouth of the infant to be sore, yet I have never found any very serious inconvenience from this; on the contrary, it has in many cases, given the mother much comfort in nursing, as it takes the child's mouth from coming in direct contact with the nipple. It also serves out a short nipple. A nipple shield with a glass base with a rubber nipple at the top is the most preferable in my mind, though there are those of a softer variety. In making applications to the nipple care should always be used in washing before the child is permitted to nurse again.

One point is always and at all times to be insisted on, whether a shield is used or not: perfect cleanliness of mother's nipple, of child's mouth, and of a shield if one is used. When there is a deficiency of milk supply, either in quantity or quality, we may oftentimes increase both by treatment of the mother by building up her general health, giving proper nutrition and milk-making food—rich milk, broths, eggs, and the like. Obeon is very useful, and has served

me well in many cases, when the stomach will bear it. In many cases, also giving of malt extracts, ale and porter, has served a good purpose. Oftentimes I have had good success with maltine, a preparation of malt, of late years largely used by the profession. All these preparations must be given with care, and not only do some stomachs not tolerate them, but they are liable to produce headaches and an accumulation of gas in stomach and intestines. With drugs that are recommended to increase a flow of milk, I have had very little success. To read the testimonials, one would gather that the milk supply would be produced in any human being, regardless of age or sex. One of these preparations which is largely advertised and supplied to the physician is composed very largely of Jaborandi, which is said to act in the system in producing a renewed flow of milk where there is a scarcity. I have never used this drug for this purpose, but, as its use increases the flow of other secretions, it may also of milk. It needs to be used with caution.

On the other hand, it is often desirable for various reasons to dry up the milk, to put a stop to its increase; either the child is dead, or it is desirable not to nurse it, and the question comes how can we best accomplish this end. After the milk has been well established, this is not always easy to do. Beginning early before the milk supply has come to any extent, I have often succeeded in

abating the flow of milk by bandaging the breast, and leaving them alone till the milk decreases of itself. To do this, the bandage must be broad, and must cover the whole breast uniformly, and must be tightly put on. It is an idea handed down from somewhere that black silk must be applied to each breast before the bandage is applied. Where the virtue of this comes in is uncertain, though it is not heating. Another method of abating the milk flow is to draw off from time to time by breast pump, or otherwise just enough milk to relieve the pressure, and so allow the milk to gradually dry up. Of the two methods, however, I much prefer the former, of bandaging. The patient must be informed that there will be some pain under this method, but she must be induced to endure it. The same object can doubtless be obtained by the application of breast plasters, either cut to suit the patient from the common adhesive diaphanous plasters, or the prepared plaster made of belladonna or physalis. The application of either of these drugs to the breast, either in the form of a liniment or ointment has, in my experience, often been found very useful, but in the use of belladonna, one has to guard against the possible absorption of the drug. I have one other instance of quite active symptoms of belladonna poisoning from the application of belladonna plasters. In my experience, the acute pain and pressure do

not remain many hours when the bandage is applied. After the milk supply has been established several days or weeks, the better way to abate the milk is by the gradual drawing off, and by application of belladonna and administration of salic cathartics.

There is one other period I wish to speak of: that is the inflamed breast. There is hardly any more painful affection than this, and it may, if not checked, often lead to serious results, oftentimes making it needful to amputate the entire breast to save the life of the mother. The causes that lead to this disorder, I will not take the time to discuss at any length; the milk ducts may become obstructed, the breast may receive some blow, there may be a result of improper antiseptic care on the part of the physician or nurse. In a greater proportion of cases, at least, the physician generally gets all the blame for an inflamed breast. We find our patient suffering pain, a portion of the breast looking angry red, either around the nipple, or a little distance from it. Very often we do not see the beginning of it, and some good neighbor or so-called nurse, has been applying with great vigor hot lard or oil, or hot poultices till an abscess is there. There is a possibility that early application of alcohol or cold water, or very weak solution of cocaine may abate the inflammation. Tincture of *phytollaca* (or poke root), has often proved useful to me. But when we are sure we have a col-

lection of pus, whether it be small or great, I think we should not delay, but advise an early opening, cleaning out, and establishing drainage and proper pressure under the best antiseptic precaution and treatment at the time, and maintained after till the trouble has abated.

I have not taken up the point of the artificial feeding of the infant, for the reason that the subject is a vast one, and a whole evening could well be spent in discussing it, and already this paper has no doubt become tedious. The question of artificial feeding of the infant is a hard one; it is far from having been settled. I doubt if it ever will be. It must be after all a matter of experiment with each child as to what food will agree with it the best, but there must also be a changing of food in individual cases from time to time for various reasons. No one can lay down any rule or set of rules for feeding. Artificial baby foods are legion; each one has its advocate, has its testimonials, has its photographs of the babies who have been snatched from the grave by their use. We want to feel that whatever we give, we are to try and make bone and muscle and not all fat. True nutrition is to be our object. In a great proportion of cases, milk in some form will be indicated, either pasteurized or modified, with cream and sugar of milk; in a certain number of other cases no milk can be taken by the child. The perfect artificial food is yet to come. Let us hope that the coming mothers may all be



healthy and that the coming children may all be enabled to get their nutriment where nature intended they

should. Till then we shall have to experiment and to be patient.

94 Warren St., Roxbury.

## METRITIS AND CARCINOMA UTERI.\*

FRTZ MAASS, M.D.

AMONGST the causes of carcinoma uteri we find in our text-books, metritis. This inflammation starts in the mucous membrane, causing the discharge of a more or less abundant secretion. When the condition becomes chronic the mucous lining of the body may hypertrophy, and erosion, ulceration, chronic inflammation of the body and tubes may follow. The etiologic relation between these different pathological conditions is easily understood. But how is it with carcinoma uteri and metritis?

The microscopical appearance of glandular hypertrophy of the mucous membrane resembles somewhat that of carcinoma and reticulum of connective tissue whose spaces are lined with cylindrical epithelial cells, is the characteristic feature of both. But there is a great and well marked difference between them. The hypertrophic mucous membrane in its structure shows more of the regularity of the normal membrane than does the carcinoma. The hypertrophic membrane grows at the expense of the uterine cavity and finds a firm impenetrable barrier in the uterine

body. For the carcinomatous degenerated membrane there does not exist any obstacle; it grows indefinitely.

According to an old idea, weakening of the connective tissue is the cause of carcinoma. The former loses its power to prevent the always multiplying epithelial cells from advancing in the wrong direction. But this has been lost sight of. Several investigators have found certain particles in carcinomatous cells, which they took for the specific germ of this disease. The new so-called microbes live in the body of the cells, and therefore at the expense of the cells, a peculiar kind of parasites which were believed not to weaken the host, as one should expect, but to make it stronger. In addition to the support of the parasite the cells were able to multiply so vigorously as to overcome the barrier of connective tissue. According to the importance of these discoveries they have been reëxamined and did not withstand the criticism. The microbes proved to be products of degeneration in the epithelial cells. In spite of many researches, the hopes to find the specific germ of carcinoma have failed. Is the theory that there must be a specific germ not a wrong

\* Read before the Detroit Gynecological Society.



one? Will not the time and work spent to find it always be lost? If this is the case, it would be necessary to have a better theory which leads the investigator in the right direction. Such, it seems to me, we find in a paper read at the last meeting of the German naturalists by C. Weigert. It is published in the *Deutsche Med. Wochenschrift*, No. 40, 1896.

Weigert does not discuss the cause of carcinoma especially; he only speaks generally about pathologic multiplying of cells. The views laid down in the paper promise a better understanding of all tumors, and we will give a short abstract of them as far as they may apply to carcinoma.

There are two powers immanent in the living cells. By one these organisms are enabled to enlarge their body and to multiply; by the other they fulfill certain functions, as contraction in the case of muscular cells, and secretions in the case of gland-cells. For enlargement and multiplying a new living substance is built; therefore, these processes are called bioplastic. But when the muscle becomes contracted and a gland forms its secretion, living material is used up; therefore these processes are called katabiotic. It is obvious and well known that katabiotic energy by which material is used up, can be influenced directly by external irritation, as for instance, the stimulation of muscular tissue by electricity, and that of the glands by drugs. Such a direct effect of external means has not yet been demonstrated in regard

to bioplastic processes by which new living material is formed. Certainly, you may produce granulation by the knife or by a caustic, but the growth does not follow immediately, as the contraction does the application of the electric current. It takes a certain time before it develops, and during this period many things may happen to tissue. Therefore, this is not a proof that bioplastic processes can be elicited directly by external means.

As long as the organism is growing, the cells are multiplying fast. But when a certain age is reached, these processes are checked in spite of the material for building new cells delivered by nourishment being the same before and after the period of growth. Certainly there is not an absolute absence of the formations of new living material, even not in bones. The cells have not lost their bioplastic energy, it is only restricted by certain obstacles. The bioplastic energy being kinetic before has become potential, and may become kinetic again, that means active, as soon as the hindrance is removed.

What are the circumstances which make the way free for pathologic multiplication of cells? Is it an external irritant, which enlarges the bioplastic energy so much as to overcome the barrier, or is the barrier itself weakened? The former hypothesis is not only unproved, as has been shown above, but also unnecessary. In regard to the second hypothesis it has been shown by recent investigations, that in some instances patholo-

gic multiplication of cells has been preceded by microscopic injuries to the tissue, as for instance in the case of the efflorescences in small-pox. These are the first steps which justify the hope, that by improvement of methods, the same will be found wherever pathologic multiplication of cells takes place.

The fibrillary intercellular substance is, according to all probabilities, such an obstacle that it prevents the connective tissue cells from multiplying. In granulations, young connective tissue, there is no fibrillary substance present, and the cells multiply abundantly. When the scar has formed, the tissue contains many fibres, and the multiplication stops. When this substance checks the multiplying of the connective tissue cells, it also prevents the epithelial cells from growing into the tissue.

These are in short the points in Weigert's paper, which help us to understand the etiology of carcinoma. As I have stated above, Weigert does not speak about carcinoma especially. He mentioned sarcoma. As far as I can see there are no reasons not to apply the views spoken about above also to carcinoma. How may the possible relation between metritis and carcinoma uteri be explained from Weigert's standpoint? Not all the catarrhal secretion in a case of endometritis is discharged. A part of it becomes absorbed and produces metritis. The longer the absorption lasts, the more the tissue of the body will be weakened and will give less resist-

ance to the multiplying epithelial cells. That not every case of metritis terminates in carcinoma does not speak against the etiologic connection between both. We know that microbes cause endometritis and metritis. Many varieties of them are found in the catarrhal discharge. In addition to this the same kind of microbe varies a great deal in its power to form a poison. In those cases in which the mucous membrane does not undergo carcinomatous changes, the poison might not be strong enough, or the tissue of the individual might be too strong for any such poison.

There is another circumstance that seems not to be in accordance with our theory. Why does not sarcoma instead of carcinoma follow the weakening of the fibrillary substance of the connective tissue? When the epithelial cells do not find an obstacle, the same should be the case with cells in the connective tissue itself. Epithelial cells are on the surface of the body and therefore by nature more enabled to resist unfavorable influences than are the better protected connective tissue cells. Therefore the latter may lose their multiplying energy by means which do not affect the former.

All these questions arise from the theory Weigert speaks about in his paper. A right theory leads the investigator in the right direction, and so discloses unknown facts. The wrong theory misleads.

The secretions of the uterine membrane are always accessible to collec-

tion. From the tissue itself small parts for microscopic examination are easily obtainable. Catarrhal conditions and carcinoma uteri are very

frequent. There is material enough to investigate under which condition metritis is a good soil for carcinoma, —a large field for the gynecologist.

## PROCEEDINGS OF THE DETROIT GYNECOLOGICAL SOCIETY.

PAPER ON "Metritis and Carcinoma Uteri" read by DR. FRITZ MAASS (see page 603).

### DISCUSSION.

DR. LONGYEAR.—I have listened with much pleasure to the doctor's paper, which certainly gives food for thought, and also gives rise to a desire to compliment the doctor upon bringing the matter before us in such an eminently scientific manner as he has. I think we perhaps neglect the consideration of the pathology of gynecological ideas in these days, and run too much to that of operative work, and a paper of this kind is extremely useful. The calling attention as he has to the fact that endometritis is so often a forerunner of carcinoma and consequently should be treated carefully and thoroughly, is of value. I think the inflammation of the lining of the uterus is not any more often the cause of carcinoma than the laceration of the cervix, which we know leads, in a great many cases to carcinoma, but even a small percentage of cases of endometritis that degenerate into carcinoma should warn us to treat such cases with great care and thoroughness, besides reminding us that we must use every means within

our power to detect malignancy in its incipency, and so give our patients the great benefit of early removal of the disease.

DR. J. H. CARSTENS.—I think we understand almost absolutely nothing about carcinoma. We know that certain cases of laceration and some of endometritis end in carcinoma. Now why do they? And why don't they always? It must be, as in zymotic diseases, that there are two factors involved, first the initial lesion and then the predisposition to the disease. There is no doubt in my mind, and never has been, that no matter how much predisposition an individual has to that class of troubles, there must be an initial lesion, and there the disease starts, and if you take that early you will prevent the development of the trouble. The necessity of prompt and energetic treatment in endometritis is certainly indicated by the fact that it does sometimes result in carcinoma. We have many of these cases of metritis ending in that peculiar condition called adenoma, manifesting itself by long-continued hemorrhages which will go on for years and years, and which will finally develop into the form that we call

malignant adenoma, and then the line between that and carcinoma can hardly be seen. In past times I remember having curetted women repeatedly, thoroughly and systematically scraping out every particle of the mucous membrane in the uterus, and still the trouble would recur, and it is these very cases that end in carcinoma. I last week operated on a woman who had been curetted many times and whom I curetted again for the purpose of making out the diagnosis. She had been flowing for three months. There was nothing alarming about that, but on sending a specimen to the laboratory it was found to be a beautiful specimen of the transition stage from the adenomatous to the carcinomatous condition. Taken now, I believe that after operation of vaginal hysterectomy there will be no recurrence. For these reasons a paper like Dr. Maass' is valuable in calling attention to this point and putting us on the lookout for the early diagnosis of malignant conditions.

DR. J. J. MULHERN.—I feel very thankful to Dr. Maass for his contribution to a subject on which the literature is very scant indeed. I think that contributions of almost any nature on this subject are valuable as incentives to stimulate the consideration of the subject, and this one backed by such high authority must be particularly valuable. I do not know that I have any well defined views on the subject, but any views I may have entertained have been quite antagonized by the

views of this paper. I have not been inclined to look on metritis as a cause of carcinoma of the uterus, but rather as a symptom. There is one fact in regard to malignancy of the uterus, and that is, it occurs chiefly at a particular time of life. Before the age of 40 the disease is comparatively rare, and it is a disease, I think, which is peculiar to the period in a woman's life known as "change of life." Now we have a "change of life" not only in females, but in males, and I think at this time of life there is a particular tendency towards degeneration, when the vital forces begin to subside and when the powers of resistance are weak, and any special tendency that may lie latent, becomes developed. We see this in women having laceration of the cervix about the time of the menopause. The laceration itself does a woman no harm; it is where nature has made a trial at repair, and deposited a plug of scar tissue in the neck of the cervix. This becomes an irritant, involving the nerve endings and the circulation of the organ is disturbed, and at the age of this tendency to degeneration a malignancy is developed. It is the same principle in an old man smoking a clay pipe; the lip is irritated, and he is apt to develop a cancer; the essential cause is the same in both cases, the existence of an irritant. Now, with this tendency to malignant degeneration, and degeneration being about to set in, an endometritis may be excited. I have never regarded the catarrhal secretion as being



malignant in itself, but the processes set up an inflammation of the endometrium. If the endometritis were the cause of malignancy, it seems to me malignant disease would be more common. It would be interesting to know how many cases develop from endometritis. The subject is a very interesting one, and Dr. Maass is entitled to the thanks of the society for bringing it up, but it seems to me the points raised are not yet established, though they furnish the basis for the

work which will doubtless be continued along that line.

DR. FRITZ MAASS.—The microscopical diagnosis of a doubtful growth from small extirpated pieces is sometimes exceedingly difficult and often impossible. I think it would help us a great deal if we were able to recognize typical changes in the connective tissue of carcinomata, as these changes take place probably before malignancy is established, and surgical measures could be taken earlier.

## CINCINNATI OBSTETRICAL SOCIETY.

DECEMBER 10, 1896.

DR. STANTON.—At the last meeting we considered the subject of occipito-posterior positions, and in that discussion I expressed the belief that many of these cases could be relieved by internal rotation, that is, by placing the patient under an anæsthetic, lifting up the fetus *in utero* and turning it on its long axis. Within forty-eight hours after our last meeting, I had an opportunity to do that. I was called by Mrs. Hart, a midwife, to a patient who had had five still-born children, and I recognized an occipito-posterior position. The pelvis was small. The membranes had not been ruptured very long, the uterus was quite relaxed, the waters not all discharged, and I thought it was a favorable case for internal manipulation. I brought the patient down to the edge of the bed, gave her chloroform and then introduced my hand. Getting my hand upon the chest of the fetus, I lifted it

up and rotated it completely and then applied the axis traction forceps and delivered a living child. The manipulation was done with so much ease, I think very often it may be done in cases of this presentation. I have done it in three cases I can recall, and I have been surprised at the facility with which it can be done. Of course, if the membranes have been ruptured for some time, the procedure would be more hazardous; but, where it can be done, it is one of the easiest ways of managing cases of this kind. Of course, the entire body must be rotated. It would not do to only turn the head around, making a complete revolution of the head; but by getting hold of the shoulders of the child, it is an easy matter to make complete rotation.

Another case that I want to report is one of induced labor by the injection of glycerine, attended with very

unpleasant symptoms. I feel more in honor bound to report this case because I reported several cases of introduction of labor by this method, attended with the best of results, in which labor was induced quite speedily. I have used it a number of times without any unusual symptoms, but last March I induced labor in a case and had very unpleasant symptoms. When the injection was thrown into the uterus, the woman at once complained of extreme pain in the head and said she was dying; and, when I felt the pulse, I feared she might die. For some time after the pulse rate was but 30 or 40 a minute. It was some hours before it was anything near normal. The labor, however, was very promptly induced; the pains came on in three or four hours and the child was delivered alive. Not very long after the occurrence of this case, I met Dr. Landy, who said he had a case in which he attempted to induce labor or abortion (I forget which it was), in which he had the same results as those I have just mentioned. I have since read of a number of cases of very unpleasant symptoms, following sometimes immediately after the injection, and in some cases there occurred a nephritis, which was believed to be the result of the injection of glycerine into the uterus. So I have come to regard this as not a safe method to resort to, and I think I have resorted to it for the last time.

DR. PALMER.—How soon after the injection did these symptoms occur?

DR. STANTON.—Immediately.

DR. REED.—How much glycerine did you use, Doctor?

DR. STANTON.—About two ounces. The syringe was filled and then a catheter passed over the beak of the syringe and all the air expelled, and then it was introduced, through a speculum, high up in the uterus.

DR. PALMER.—Was there any discharge of blood or separation of placenta?

DR. STANTON.—None at all.

DR. PALMER.—And there was no suspicion that there was any air injected?

DR. STANTON.—None at all. The instrument and the catheter were both full of glycerine. The glycerine was forced up into the catheter until it was completely filled, and then it was kept in that condition until it was used. There was no difficulty whatever in the introduction of the catheter; it was passed along the posterior wall of the uterus and almost the entire length of the cavity, and the injection made high enough up.

DR. JOHNSTONE.—Where did she complain of pain?

DR. STANTON.—In the head.

DR. ZINKE.—What was the condition of the os?

DR. STANTON.—Patulous.

DR. ZINKE.—And what evidence was there that you did not introduce the catheter between the placenta and the uterine wall?

DR. STANTON.—Only that there was no blood on the catheter when it was removed.

DR. ZINKE.—Does not usually the

glycerine escape after the withdrawal of the catheter?

DR. STANTON.—No. Where you can get the glycerine five or six inches in the uterus, there is no danger of it escaping if the patient is kept in the recumbent posture.

DR. ZINKE.—Whereabouts in the head did the patient complain of pain?

DR. STANTON.—Principally the top of the head.

DR. REED.—How long did these symptoms continue?

DR. STANTON.—I gave her a stimulant right away, some camphor and whiskey, and the symptoms gradually subsided. After half an hour I gave her some morphia, because of the continuance of the pains. I did not give morphia before because I did not want anything to interfere with the labor pains, but on account of the pain continuing so long, I gave the patient a quarter of a grain of morphia, and it did not prevent the coming on of labor pains.

DR. JOHNSTONE.—How long did this condition of shock last, doctor?

DR. STANTON.—Probably after two and a half or three hours it was all gone.

DR. REED.—How many fatal cases by this method are on record?

DR. STANTON.—I have not seen any reports of fatal cases, but some cases of nephritis have been reported which were supposed to be due to it.

DR. JOHNSTONE.—Do you know whether any of the glycerine had es-

caped before the symptoms improved?

DR. STANTON.—I don't think any had. At any rate, it certainly had the desired effect of promptly inducing uterine action. I have seen recently a method of inducing labor by applying glycerine to the cervix. I have had no experience with it. From what I have seen lately, however, the method of which I have spoken is not the one to be used.

DR. EDWIN RICKETTS.—Did these pains begin before the full amount of glycerine was deposited?

DR. STANTON.—No, I think not. I used the largest sized catheter I could get and used the catheter point of the syringe, which you know has a very small opening, through which glycerine cannot be readily drawn. For instance, atmospheric pressure is not sufficient to force glycerine up through such a syringe. In this case the instrument was filled with glycerine and then the point screwed on and the catheter applied and the air expelled, and then the piston was pushed down as rapidly as possible. The pain came on just about the time the full quantity of glycerine had passed.

DR. REED.—Would Dr. Stanton kindly give us his theory of this phenomenon?

DR. STANTON.—I have no theory.

DR. JOHNSTONE.—How about the temperature?

DR. STANTON.—I do not remember now, but there was some depression.

DR. PALMER.—Mr. Chairman: I am glad Dr. Stanton has made a re-

port of this case, for my impressions in reference to the intra-uterine injection of glycerine, for the induction of labor, as reported by Dr. Stanton, are precisely the same as they have been. This subject was up for discussion two or three years ago, and I stated then that I had heard and read a good deal about it, but had not much faith in it, and that I was determined to follow the method I had found to be safe and sure. I refer to the use of the solid bougie. Such a case as that reported this evening by Dr. Stanton is very important for all of us to know of, and I think the doctor will be very careful about using it again. I think we can safely say that the solid bougie, if used carefully and antiseptically, is the safest and best means we have, for the induction of premature labor. Possibly one bougie of ordinary size may fail to induce uterine contractions, but the insertion of a second one, somewhat larger, and in another place, between the membranes and the uterine wall, has never failed me. It induces pains and cervical dilatation in a normal physiological way. If a solid bougie, not a catheter, made thoroughly aseptic, is employed, it is perfectly safe.

I have seen repeated instances of the evil influence of vaginal injections, to prevent impregnation.

At the beginning of my practice, I often injected the uterine cavity with medicated fluids for intra-uterine medication. I have not done so for

the last 15 years, unless after the necessary preliminary use of cervical dilatation. Now, after dilatation and after the employment of a reflex intra-uterine tube, no unpleasant symptoms of shock ever show themselves. When symptoms, unpleasant in kind, come on after intra-uterine injections, the pulse is always frequent and there is intense pelvic pain, but I have never witnessed the pain in the head, referred to by the reporter.

DR. STANTON.—Mr. President: Dr. Reed spoke of the possibility of having injected some of this fluid into the veins. I have a great many times introduced catheters or bougies into the uterus of pregnant women, and I think I can tell when I strike the uterine site. The separation of the placenta is very different from the separation of the membranes from the uterus. And I have never introduced an instrument easier than I did in this instance, so that explanation could not hold in this case. There was nothing in the subsequent history of the case that was at all unpleasant. The labor was difficult, but there was nothing in the after-treatment that was out of the regular course.

DR. PALMER.—Was there any disease of the cervix or *corpus uteri* to give a patulous condition?

DR. STANTON.—The woman had an extensive laceration at some previous labor.



# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### THE PROGNOSIS AND TREATMENT OF PERTUSSIS.\*

FRANK DYER SANGER, M.D.

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EARLY in 1893, an epidemic of pertussis broke out in the Nursery and Child's Hospital, and quickly invaded the Infant Department, where, at that particular time, there happened to be an unusually large number of very young infants on the bottle. Efforts were made to isolate the patients, but new cases constantly made their appearance, and it was not until a month had passed that the disease dwindled and finally disappeared, having exhausted itself apparently, for "the soil" was being occasionally renewed by the introduction of new babies into the Institution.

During the six months from February to July inclusive, we had fifty-two cases of pertussis; of these nineteen cases occurred in infants under six months of age, all artificially fed save one, and she was a premature,

and extremely feeble child. Not one of these infants survived. The average age of the nineteen infants at the time of death was seventy days. The shortest duration noted was that of an infant born the first day of the month, who was brought into the hospital on the eighth, developed pertussis on the fifteenth, had the distressing spasmodic cough, but no whoop, and died on the eighteenth day of exhaustion. The average duration of all these cases was short, not exceeding twenty days.

The immediate cause of death in the majority of the cases seemed to be exhaustion. Nine of the nineteen cases, however, came to the autopsy table, where emphysema, both vesicular and interstitial was found. Vesicular emphysema, extensive in character, was present in all cases, and is probably a constant lesion in pertussis affecting young infants. The

\* Read by title before the Medical and Chirurgieal Faculty of Maryland, April 30, 1897.

interstitial variety was met with three times in the nine cases examined, small interlobular, and in one case, a large subpleural air bubble being observed. Next to emphysema, atelectasis was most frequently noted in the posterior and inferior aspects of both lungs, with occasional small areas that would not inflate. In these examinations, the lungs attached to the trachea, together with the heart, were removed *en masse*, and inflated through a glass tube introduced into the trachea. The emphysematous areas are by this method most beautifully shown. Simple collapse of the air cells will, under inflation, disappear, whereas the macroscopic appearance of the air cells which are filled with exudate, is not materially changed by inflation.

Pronounced broncho-pneumonia was found in three of the nine cases examined. Hyperæmia of the mucosa of the bronchial tree and excessive secretion was universally observed. Enlargement of the tracheo-bronchial glands was also common. In no case could there be said to exist lesion of the heart. Though difficult to estimate, there was not, in my judgment, any alteration in the capacity of the chambers, especially of the right heart. No macroscopic change was noted in the liver, spleen, or kidneys of the cases examined. One of the nineteen cases was complicated by erysipelas, but did not come to autopsy. Digestive disturbances were common, and green diarrhœic stools much more frequent-

among the sufferers than obtain under ordinary circumstances in the hospital, where, since a large number of young infants are being reared artificially, digestive disturbances and diarrhœas are not uncommon during the summer months.

Fourteen cases occurred in infants between the ages of six months and one year. Of these, five died, and nine recovered. Among the five who died, one was an extremely feeble strumous child, with double otitis media, one had proctitis, probably tubercular, and convulsions, which were the immediate cause of death. The post-mortem in this case revealed extensive ulceration of the colon, with catarrhal inflammation of the lower ileum, and enlargement of the mesenteric glands. The lungs were extremely emphysematous anteriorly and superiorly, showing large depressed contracted areas of atelectasis on the posterior and inferior surfaces. Section revealed no tubercles, but hyperæmia of the bronchial mucosa was present. The tracheo-bronchial glands were also enlarged. The convulsions which occurred in the child just before death, and seemed to be the immediate cause of death, were confined to the left arm and leg. Examination of the brain revealed numerous small punctate hemorrhages in the right motor area. The meninges also were somewhat injected. It is rather interesting to note that this was the only case in fifty-two in which convulsions occurred, in view of the

fact that convulsions are supposed to be a common complication of pertussis, particularly in very young children.

The third of this series of five deaths had furunculosis, and became septic, dying, as much from the exhaustion of sepsis as from the exhaustion of cough. The fourth had angina and double otitis, and the fifth died in the midst of a period of extreme heat, partly, in all probability, of heat exhaustion as well as cough. All of these children were artificially fed.

Of the nine children between six months and one year who recovered, numbers one and two were artificially fed, syphilitic children on specific treatment. Three and four were breast babies, and recovered without incident. Five and six, artificially fed babies, recovered without incident. Seven, eight, and nine were artificially fed infants. They recovered from the whooping cough, but fell easy victims soon after, seven to enterocolitis, eight to cholera infantum, nine to malnutrition.

Nineteen of the fifty-two cases occurring during this epidemic were children over one year of age, between one and four and a half years. Only one died, an extremely anemic syphilitic child, one year one month and nine days old.

It will be seen, therefore, that of the fifty-two cases occurring among children from birth up to four and a half years of age, twenty-five, or

forty-eight per cent died. Twenty-four of these were under one year of age, and nineteen under six months. To be more specific, eight were under two months, six between two and three months, three between three and four months, two between four and five months, and the others scattering. As will be seen, the mortality in this epidemic is inversely as the age and month, and this is the point which I wish particularly to bring out in this paper, a point which is not sufficiently known to the public, and is, I am afraid, too little appreciated by the profession.

It is not worth while to discuss the etiology of pertussis at length. Clinically, no disease is more certainly contagious, both by mediate and immediate contact with an infected person, than is pertussis. The infectious principle (possibly the *bacillus tussis convulsivae* of M'Afanassjew) is not sufficiently known to speak of with any degree of dogmatism, but the organism does not seem so tenacious as does that of scarlet fever, therefore mediate contagion at remote periods is not so likely to occur. That mediate contagion does occur, is generally believed, though many observers are of the opinion that the room, clothing, furniture, etc., are not as ready conveyors of whooping cough as of measles and scarlet fever, which is, in all probability, true, since the fine desquamated epithelium of the latter cases is probably a conveyor of the poison, and by reason of the light character of this material, the poison

becomes more universally distributed, and infection of the room and its contents more complete. My experience, however, has led me to look upon pertussis as one of the most unsatisfactory diseases to isolate, unless isolation can be accomplished in an entirely different building. When isolation is attempted in a house occupied by young children, even if it is accomplished on a different floor, and in a remote location, it is apt to be ineffectual.

A point of utmost importance in which pertussis differs particularly from scarlet fever, and to a less degree, from measles and diphtheria is that the younger the child, the more pre-disposed it is to fall victim to the contagion. While no age is exempt from scarlet fever, while children have been born with it, and occasionally contracted it during the first year of life, the susceptibility of the infant under one year of age is not marked. It is commonest between two and seven years. Children under six months of age rarely have measles. It is not particularly common under one year, though I have, and every one who deals with children must have seen it occasionally. So with diphtheria; it is extremely uncommon under six months of age. I have never seen it in a child so young. But whooping cough selects by preference the very young and tender for its victims. It should, therefore, be considered of the above mentioned quartette of infantile scourges by far the most dangerous to life under one

year of age. It is of course, proper to state that the mortality in the epidemic reported is not an exact index of the general mortality. It is undoubtedly true that the mortality from whooping cough in foundling hospitals is greater than obtains in the home, but it is not the total mortality which I wish to insist upon, so much as the fact that the mortality is greater under one year of age, and increases as age diminishes, reaching its acme among very young bottle infants.

In England, according to Dolan, whooping cough ranks third among the fatal diseases of infancy, three-fourths of the deaths occurring in children under two years of age. In London it causes one-fourth of the mortality among children. Dr. Griffith of Philadelphia, in his article on pertussis in "An American Text-Book on Diseases of Children," states that in England and Wales one hundred and twenty thousand persons died of the disease between the years 1858 and 1867. Eighty-five thousand succumbed in Persia between 1875 and 1880. Dr. Jacobi, in his "Therapeutics of Infancy and Childhood," says, "The mortality from pertussis in New York is as great as that from typhoid fever." And yet how much we hear of the latter, and how little of the former. "Twenty-five per cent of all cases under one year of age," says Dr. Jacobi, "terminate fatally." Holt thinks that probably one-half of all cases of whooping cough occur under



two years of age. He quotes Szabo's statistics of 4,591 cases occurring during the period of thirty-four years in one clinic in Buda-Pest, 1,028 of which occurred under one year of age, 1,008 between one and two years, 659 between two and three years, 904 between three and four years, 803 between four and seven years, and 189 over seven years.

When one contemplates the tremendous injury to the delicate lung tissue which is wrought by whooping cough at this tender age, and reflects upon the limited probabilities of repair, one must also be impressed by the remote effects which such destruction has upon growth and development, since the whole question of growth and development depends upon perfect respiration. Nor should we be deluded by the thought that such a catastrophe as emphysema, for instance, is rendered less calamitous by the possible immunity it gives the individual from tubercular affections later in life. Such immunity, I believe, has been greatly over-estimated. Dr. Holt says that in pre-disposing to tuberculosis, pertussis is second only to measles. The other complications so common in young infants, pneumonia, atelectasis, hemorrhage, convulsions may so hinder the physical development of the child as to influence his entire life history. We, as pediatricists, do not sufficiently insist upon the fact that the chief functions of young life are growth and development, and that, aside from the mortality associated with

disease, all morbid processes should be shunned and resisted, because by interfering with growth and development, they influence the entire future of the individual. That catarrhal affections of the respiratory tract pre-dispose to whooping cough is well known and is in accordance with what we know regarding other infectious processes. Diphtheria does not commonly occur in perfectly healthy throats; the pneumococcus lanceolatus only becomes dangerous when the resistance of the mucous surfaces of the respiratory tract is diminished. The explanation of the close relation between measles and whooping cough is, therefore, perfectly obvious, as is also the reason why strumous and rachitic children are pre-disposed to pertussis. For the same reason that minor throat affections should receive prompt and careful attention when diphtheria is about, and that diarrhoeic troubles should be promptly attended to during the heat of summer, catarrhal processes in the respiratory tract, however trivial, should not be neglected when whooping cough is in the neighborhood, and children subject to them should be most carefully protected from contagion.

Since whooping cough has a special predilection for very young infants, and since it is one of the most dangerous diseases of this period, not only dangerous to life, but jeopardous to the future life and growth of the individual, to say nothing of the terror

which it produces in every mother, it is clear that the utmost precaution should be taken to protect infants from contagion.

It is time that the public should be educated out of the too common belief that whooping cough, measles, and scarlet fever are necessities incident to young life. Whooping cough is particularly apt to be transmitted in public schools because of the length and great variability of its course, and because there is much uncertainty regarding the period during which it is contagious. The danger is not in the transmission to other schoolchildren particularly, for children at the school age are not so seriously affected; but the real danger is for the schoolchild to carry the disease from the school into the home, where there is perhaps a suckling, or perchance a bottle baby; and every one knows how much more susceptible the latter is and how feeble his reaction against morbid processes of all sorts.

In order to protect other children in the household from whooping cough, and I hold that this is a subject of paramount importance, it is necessary to make the diagnosis at the earliest possible moment; if possible, long before the occurrence of the whoop. In order to accomplish this, careful attention must be paid to the history. First, ascertain whether the individual has had whooping cough (of course it should be remembered that one attack does not absolutely protect), and second, inquire particu-

larly regarding a known exposure. If the individual has not had the disease and is not conscious of being exposed, it is well to inquire into the movements of the patient during the past few days. A knowledge of the localities in which whooping cough is prevalent at any particular time may enable us to determine at least something about the possibilities or probabilities of exposure and be of material assistance in making the diagnosis. The next point of importance is the obstinate cough coming on in paroxysms, recurring at frequent intervals and continuing in this manner for days in succession. The cough of pertussis prior to the appearance of the whoop resembles most that of an acute simple catarrh. One rarely sees such obstinacy in the latter as in the former. Fever accompanies both conditions. It may, or may not be higher, but it is usually of longer duration in whooping cough. Vomiting sometimes follows even the early cough of pertussis, but it is not common until the convulsive element is established. The terror which precedes the attack after the convulsive cough makes its appearance is not usually seen at first, but very early a certain degree of apprehension will be noticed, which is somewhat significant.

Physical examination of the chest in suspected pertussis is chiefly of value to eliminate other affections. Resonance is apt to be deficient during expiration in pertussis, but clear and full during noisy inspiration,

though the vesicular murmur may be diminished or absent, depending upon the amount of interference with the ingress of air. When the secretion is tolerably free, bronchial râles are heard. Examination of the chest should be frequently made during an attack of whooping cough, in order to discover early broncho-pneumonic, atelectic and other complications.

Cough is at all times liable to be spasmodic in character in young children, but whenever cough becomes decidedly paroxysmal, recurring frequently, tending to increase in severity, associated perhaps, with suffusion of the eyes, and swollen face, preceded by apprehension and followed by vomiting, and particularly if it is associated with temperature and no definite physical signs in the chest, so strong a suspicion should be entertained that if any history can be added, whoop is hardly necessary to the diagnosis.

The time when the spasmodic element becomes sufficiently marked to produce the whoop is extremely uncertain. Very rarely it has been observed at the very onset of an attack, but usually from three to twenty-one days elapse before whoop makes its appearance, during which time the disease is undoubtedly contagious. To wait for the whoop to make its appearance in order to establish the diagnosis is an injustice to other children in the household. Not infrequently, no characteristic whoop is heard. It was absent in a number of the infants above reported, but its ab-

sence did not shake my faith in the diagnosis, though I admit that in the absence of an epidemic or any history of exposure, the diagnosis of whooping cough without the whoop is like the diagnosis of scarlet fever without the rash under similar circumstances. An effort should always be made to hear the child cough when pertussis is suspected, which can usually be accomplished by pressing on the larynx or otherwise slightly irritating the child. It is a mistake to regard whooping cough so lightly as to be contented with a domestic diagnosis which, I predict, is often done.

The sub-lingual ulcer is not diagnostic, though it is a common event.

The first and most important point in the treatment of whooping cough is therefore, to make an early diagnosis, in order that other children, particularly the very young and feeble, may be protected.

S. Russel Wells and S. J. G. Caries of London, believe that the catarrhal stage of disease should be regarded as the period of microbial activity, the whooping stage being due to the after effects of the toxine, conclusions which hardly seem justified by the present state of our knowledge regarding the etiology of pertussis. It does seem probable, however, from numerous observations that the disease is contagious from a very early date, in many cases probably long before the whoop makes its appearance, and that the contagiousness diminishes with the disappearance of the whoop. Weill reports an instance



in which twenty-nine children were placed with one hundred and twenty-three others who were in the late stages of pertussis, and not one of these twenty-nine children contracted the disease. We need more such clinical observations before we can venture to fix the time limits of the contagiousness of pertussis.

The infected child should be rigidly excluded from school from the first appearance of cough till some time after the whoop has disappeared. It should be remembered, of course, that in certain neurotic children the whoop remains for a long time, becoming sort of a habit spasm, which will sooner or later disappear. It is better to send other children away from home than to try to isolate the patient. Of course, under certain circumstances, this is impracticable. When it cannot be done, isolation is best accomplished in the most remote location in the house, best on the upper floor, where much attention can be paid to ventilation. Of the two evils, excessive ventilation is much less detrimental than a deficient amount of fresh air. It is not necessary to confine older children absolutely to the house in uncomplicated whooping cough. In fact, they should be allowed to go freely outdoors when the weather is suitable, but they should be kept as much as possible from other children. It is best to keep the air of their room continually impregnated with a certain amount of moisture. I am of the opinion that the moisture in the air is

the element which is of greatest benefit in the hands of those who use the steam atomizer freely, rather than any solution used. The solutions advocated are almost too numerous to enumerate, as are the drugs recommended in this affection.

Before speaking of drugs, however, there are a number of points regarding the care of the child which should be mentioned. No disease requires more attentive nursing than does whooping cough in the very young. During the greater portion of the time, the infant is better off in bed than in the nurse's arms, for every opportunity for rest and recuperation should be improved, but the child must not be permitted to remain long in one position. The nurse should see to it also that the chest is not restricted by tight clothing, or oppressed by heavy covers. The bowels should be kept open, the skin clean and active. Temperature does not usually require the bath or other treatment in uncomplicated whooping cough. If an occasional cold bath is necessary, it is important that the activity of the skin should be quickly restored after the bath by friction. When fever does not exist, warm baths should be frequently administered, followed by friction, to increase the capillary circulation.

The feeding of the child becomes a very vexed question, since the taking of food is apt to excite a paroxysm of coughing which ends in vomiting. Infants should be nourished if possible, at the breast, but whatever the



nourishment, it should be administered at rather more frequent intervals, and in smaller quantities than under ordinary circumstances. The stomach should never be full. Advantage should be taken of the quiet periods just after, or between paroxysms, to administer nourishment. Drugs only influence vomiting by influencing cough. In extreme cases, when the nutrition of the child is seriously in danger by continuous vomiting, occasional nutrient enemata may be used. The nurse should be especially attentive to the child during the paroxysm. She must not pick it up and toss it about, as mothers are apt to do, or coddle it closely in her arms, but by raising it up in a sitting, or upright position, she may be ready, if necessary, to introduce her finger, covered by a bit of soft muslin, into the throat, and dislodge a mass of tenacious secretion, or by turning the child over with its face down, may assist if vomiting takes place, in clearing out the respiratory passage. Her presence, undoubtedly gives a certain amount of comfort and assurance to the child, as children on their feet invariably rush to their mother or nurse when a paroxysm is impending. Nothing is more pitiful than to witness the unaided and futile struggle of a choking, palpitating infant in a paroxysm of whooping cough. Since any disturbance of the child is apt to bring on a paroxysm, the mental repose, as well as the physical quietude of the child should be continually studied.

One has but to glance over the long list of remedies advocated for whooping cough, to be convinced that we have no specific for the malady. The duty of the medical attendant, therefore, should be to ameliorate distressing symptoms so far as he is able, and to guard against dangerous complications. Remedies especially directed at the catarrhal process in the bronchial tree seem to have very little influence. It should constantly be born in mind that nature's method of clearing the bronchi in children is by vomiting, and while nature's method sometimes becomes objectionable, even dangerous, the excessive vomiting threatening the nutrition of the child, it is occasionally desirable to induce emesis, when, for instance, in the absence of vomiting, the efforts of the child to dislodge secretion are ineffectual. Under these circumstances, a quick, and at the same time, non-depressing, emetic should be administered. Remedies to increase or diminish secretion, are rarely useful, except, perhaps, alum in the late stages.

To ameliorate the neurotic element should be our chief concern. Belladonna has, perhaps, stood the test of time better than all other drugs which are used for this purpose. It is undoubtedly useful when pushed to the point of producing its physiological effect. Dr. Jacobi speaks of it more highly than of any other drug. He believes that it not only ameliorates, but cuts short the attack. Opium is a valuable remedy on occasions,

to secure rest, for instance, when exhaustion is great, or to stop vomiting when food cannot be retained. We should not depend upon it for continuous use. Quinine, antipyrine and phenacetine have many advocates. I have not seen marked benefits from their use in infants. It is always more or less difficult to get the child to take quinine, and when given in sufficient doses to effect cough, it produces depression. Antipyrine should be watched when administered in any condition associated with embarrassment of the heart. Phenacetine is safer, but has less influence over cough. Digitalis is sometimes useful if the heart embarrassment is excessive.

For the past four years I have used bromoform more extensively than any other drug, on the whole, with greater satisfaction than any other remedy. I question whether it cuts short an attack, but that it relieves the distressing cough, diminishes the number of paroxysms, silences the whoop, checks the vomiting, I am perfectly convinced. I have never seen any objectionable symptoms arise from its use, though it will, in large doses, occasionally make a child sleepy, and perhaps, a little stupid. I am in the habit of commencing with one or two drop doses, administered in milk, and given four or five times in the twenty-four hours, increasing the dose cautiously according to the age of the child, until the severity of the paroxysm is diminished, when the dose can be maintained, or diminished, as may seem desirable.

With local applications, either in the form of spray, vapor or powder, I have had little experience.

To hurry and assist convalescence, cod-liver oil and the syrup of the iodide of iron are most useful.

Hemorrhage in various locations as a complication of whooping cough, is largely the result of disturbances of the circulation produced by the paroxysms of cough, and yet its more frequent occurrence late in the attacks suggests that blood or vascular changes resulting from anæmia may be coöperant factors. The indications are to relieve cough, the local application of ice, or other hemostatic measures, and finally to combat the anæmia by keeping up nutrition, and possibly by the administration of iron.

Convulsions rarely occur in uncomplicated whooping cough. The advent of a spasm should always lead to a careful reëxamination of the patient for some complication, particularly broncho-pneumonia. Chloroform is by far the best remedy to check and hold convulsions in abeyance.

Of the treatment of broncho-pneumonia, atelectasis, and emphysema, I shall not speak.

In closing, I should like to submit a brief summary of important points for consideration.

1. Children under one year of age are particularly susceptible to whooping cough, especially strumous and debilitated infants, and infants artificially fed.

II. The younger the child, the greater the mortality, whooping cough ranking as one of the most fatal diseases under one year of age.

III. The delicate lung tissue of infants who survive an attack of whooping cough may be irreparably damaged.

IV. It is, therefore, of utmost importance that very young children be protected from contagion, best by removing them from the house where there are infected individuals, or when this cannot be done, by as rigid isolation as can be accomplished in the home. In order to protect the young, diagnosis must be made early by careful attention to history, character of cough, appearance of face, apprehension, vomiting, temperature, and examination of the chest.

V. Attention to the hygienic surroundings of the patient and careful

nursing and feeding are of great importance.

VI. Whooping cough is a self-limited disease, for which there is no specific remedy, or class of remedies. To ameliorate the distressing cough, diminish the number and severity of the paroxysms and check excessive vomiting are the chief indications. Bromoform seems best to meet these indications.

VII. By diminishing the number and severity of the paroxysms, the danger of complications which are largely mechanical is minimized.

VIII. Cases should be watched closely, and the chest examined systematically, in order that complications may be discovered early and properly treated.

525 North Charles Street,  
Baltimore, Md.

## A CASE OF SYMPTOMATIC PAROTITIS OCCURRING AS A COMPLICATION OF TYPHOID PNEUMONIA.\*

J. GURNEY TAYLOR, M.D.

GENTLEMEN: I have the pleasure to present to you this evening a few notes of mine on an interesting case occurring during my service at St. Christopher's Hospital for Children.

It is a case of typhoid-pneumonia, in which symptomatic bilateral non-suppurative parotitis developed.

I will briefly run over the history of the case first:

E. S.—Male. American. 1½ years. Family history was negative, as far as could be ascertained.

Previous History.—He had previously had diphtheria, pertussis, varicella and measles; from the latter he was convalescing, when admitted to the hospital.

\* Read before the William Pepper Medical Society of the University of Pennsylvania at its opening meeting.

The present illness dates back about one week, when he complained of pains in stomach and limbs, and being very chilly. There was no epistaxis, and his bowels had been regular.

Physical examination revealed a very poorly-nourished child. There was marked pallor of face, conjunctiva, and lips. Pupils were equal and normal, and there was eczema of left ala of nose. The tongue was clean and moist; no cough was noticeable.

The ribs and clavicles were very prominent, and the chest slightly barrel-shaped. The tension of the skin over the abdomen was very poor, and there were many small scattered, non-elevated, pigmented splotches upon the thorax, abdomen and limbs, with a decided desquamation which was the remaining evidence of the measles.

The pulse rate was 100. It was regular, low tension, and very weak.

The heart was normal. Spleen and liver negative.

Abdomen was prominent and tympanitic, but no pain upon pressure.

Lungs.—Anteriorly, there was diminished expansion of left side, and dullness over apex, also increased vocal resonance and tactile fremitus with bronchial breathing. Posteriorly the same indications of consolidation at left apex existed. A very few fine, moist râles were heard at apex.

Respirations were 24. Temperature on admission was  $97^{\circ}1.5$  F. Urine: sp. grav. 1020; no albumen or sugar.

Having made mention of the gen-

eral condition of the child when he came under my care, I shall simply state the salient points in the development of the disease with the complications ensuing.

On the evening of admission, his temperature rose to  $105^{\circ}1.5$  F. It was apparently about the tenth day of the disease when he was admitted, and on the twelfth day, or two days after admission, the typhoidal symptoms became pronounced, hebetude became marked, the tongue coated, "pea soup" stools, tympanites increased, and the characteristic eruption of rose-colored spots, which disappeared upon pressure, was present. At the same time, the lungs showed patches of consolidation posteriorly, most marked at apex of middle lobe of right and at base of the upper lobe of left lung. Cough developed with slight expectoration.

On the 17th day of the disease, I noticed a swelling occupying the region of the left parotid gland. It was pyriform in shape, the base downward, painful on pressure, and the skin was very tense and glazy; there was no redness or œdema, or any signs of active inflammation. There was decided pain upon opening the jaws.

Two days later, the right parotid became involved, and presented the same signs as left; there was a concomitant rise of temperature on both days on which the parotids became involved. This rise of temperature may have been in part due to the parotitis, but the lungs showed an extension of



the pneumonia, other portions being freshly involved upon those days.

Upon the 20th day, paronychia of both thumbs developed. After the 17th day, the pneumonic symptoms and characteristic temperature predominated.

Before closing, I should like to call your attention to a few features of the case which I have omitted: First, the spleen was enlarged after the 12th day, but it was not palpable. Secondly, there was marked constipation attendant throughout the course of the disease.

Parotitis occurring as a complica-

tion of typhoid fever, especially, is usually unilateral, and suppurative, and occurs in the 3d or 4th week.

Osler says that symptomatic parotitis occurs most frequently in typhoid fever. It has been regarded by some as a fatal complication, but in his series of cases, it did not occur in any of the fatal ones. The cause of the involvement of the parotids, I believe due to a streptococcus infection extending from the mouth through Steno's duct. The case recovered.

6020 Overbrook Ave., Philadelphia.

## INFANTILE CYANOSIS FROM BISMUTH POISONING.\*

A. S. MAXSON, M.D.

AN American lady gave birth to twins, a girl and a boy.

As you might expect, the girl was the stronger, as well as the better of the two.

They both experienced difficulty in digesting and assimilating their mother's milk.

White and green curds, and later much mucus, some of it of a greenish color, passed the bowels.

Various unsuccessful treatments were used until the children were three weeks old, when they were given Squibb's subnitrate of bismuth in the dose of .5 gm. every two hours to each, which was increased to 1.

gm. every two hours. The bismuth was given in aromatic syr. of rhubarb and mucilage acacia.

Soon the bismuth passed from the bowels uncolored. The breath took a strong garlicky odor, so much so that the mother remarked about the peculiar odor. The boy first, the girl later slowly changed to a dark color, as if asphyxiated. They acted sleepy, and did not worry. A change in the medicine was made, so as to almost wholly withdraw the bismuth; then the cyanosis disappeared from both children as rapidly as it came.

About two weeks later, one of the twins had a relapse, passing much mucus, and was put on Squibb's sub-

\* Read at the annual meeting of the Wisconsin State Medical Society, May 7, 1897.

nitrate of bismuth in .5 gm. dose every two hours, resulting in the uncolored bismuth passing the bowels, garlicky breath, and cyanosis, which disappeared on withdrawing the bismuth.

I will remind you of the teaching of some of the masters that bismuth is under certain conditions non-toxic, under other conditions it is toxic, and that when non-toxic, a sulphide is formed limiting its absorption. H. C. Wood, second edition, says of bismuth, "When pure, however, . . . it can be taken without injury in indefinite quantity." Emmet Holt, in his most excellent treatise on acute mycotic diarrhœa in Keating on "Diseases of Children," vol. III, p. 121, says of bismuth, "To be efficient, it must be given in large doses, *i. e.*, two to three drachms a day to a child a year old. It always blackens the stools."

H. C. Wood, eighth edition, p. 469, says of the most insoluble bismuth preparations that "when applied in very large quantities to extensive wounded surfaces, they are capable of yielding so much bismuth to absorption as to produce a poison-

ing which is characterized by a stomatitis with a peculiar black discoloration of the mucus membranes, usually beginning upon the borders of the teeth, but spreading over the whole of the mouth, followed by an intestinal catarrh with pain and diarrhœa, and in severe cases, with desquamative nephritis."

Farquison, in his "Materia Medica and Therapeutics," second American edition, says: "Very little bismuth is absorbed, and it is principally thrown out of the system by the intestines to whose secretion it imparts a blackish hue from the formation of a sulphide."

Conclusion.—This bismuth of Edward Squibb's make passed the intestine of two three-weeks-old babes unchanged in color, hence none of it was reduced to a sulphide, and its absorption was not interfered with by its precipitation as a sulphide, as in adults.

Inference.—This cyanosis and garlicky breath were manifestations of bismuth poisoning.

Milton Junction, Wisconsin.

# PROCEEDINGS OF THE PHILADELPHIA PEDIATRIC SOCIETY.

MAY 11, 1897.

J. P. CROZER GRIFFITH, M.D., PRESIDENT, IN THE CHAIR.

DR. HAMILL exhibited a boy 6 years old with enlargement of the spleen, probably of specific origin.

## DISCUSSION.

DR. F. PACKARD.—I should be inclined to agree with Dr. Hamill in regard to the syphilitic origin of this condition of the spleen, but I must say I do not think that we can rule out the influence of rickets. To my mind the rosary there is sufficiently distinct to cause us to take that into consideration in regard to the visceral changes. In cases of enlargement of the spleen in the young we always have to think of syphilis, particularly inasmuch as Ball and Fox state that in almost 45 per cent of cases of inherited syphilis the spleen was enlarged and in about 50 per cent of enlargement of the spleen, there is a syphilitic taint, so that the connection must be an extremely close one. Do you think it possible that there could be amyloid change in the spleen and liver accounting for enlargement of both these organs? Of course the only way that we could judge about that would be the previous history of the case; the failure of involvement of kidneys would be against it. I do not think the element of rickets can be entirely overlooked.

DR. S. M. HAMILL.—The rosary does exist to some extent. The rachitic manifestations are, however, not very distinct and this is practically the only one which is very evident, and for this reason I am inclined to exclude rickets as a causative factor. I do not think amyloid degeneration exists, because the child has been absolutely healthy, with the exception of an attack of epigastric pain which he had two years ago. The mother says he has been an unusually healthy, active boy. He was brought to me merely on account of vomiting of blood from which he suffered six or eight weeks ago. Since his recovery from that he has been feeling perfectly well.

DR. S. W. MORTON read a paper upon "Multiple Paralysis Following Measles," in which he reported an illustrative case.

The case in brief was as follows: Jos. P., æt. 2 years 8 months, with family history negative with exception of frequent rheumatic neuritis in case of his mother, had been free from any disease whatever until this attack, which presented the characteristic symptoms of measles and seemed, up to the fifth day, to be a simple but vigorous case. On this day there was present evident dyspha-

gia, hyperæsthesia and pain in movement. These all increased for several days and then gradually subsided, but were not absent until the fifteenth or sixteenth day of the disease and were then followed by rapidly increasing paralysis and some anaesthesia. The temperature on the fifth day registered  $105^{\circ}$  F., continued between this and  $103^{\circ}$  F., until the ninth day when gradual defervescence began, normal being reached on the seventeenth day. Patient was very irritable from the fifth to the fifteenth day, crying at every mouthful of food or medicine or on the slightest touch of his skin or movement of his head and limbs. He swallowed his food slowly and with evident pain. He spoke to no one from the fifth to twenty-eighth day after disease, at first possibly for fear of pain it would cause, later because he found it impossible. The nose and throat were examined repeatedly for lesions but none but those of acute catarrhal pharyngitis and rhinitis were present. The urine was febrile and showed a trace of albumen but no casts on the fifteenth day. Mind was clear with exception of delirium present when temperature was upwards of  $105^{\circ}$  F. Medicines used were tr. aconite root, spts. ætheris nit., neutral mixture, phenacol.

By the twenty-second day, it was observed that he had not grown in strength as one would have expected with the establishment of his appetite and other functions, but as his mother put it, "has grown weaker as he grows

better." As he lay upon his couch his head was found to be on one side or the other, the arms and legs remained where they were placed and when raised the hands and feet dropped, but he did not cry when handled as he did when feverish. He tried to speak but could utter only an unintelligible whisper—gave his assent by a nod of the head. When placed in a sitting position his head fell upon his shoulder and his trunk muscles were too weak to support him.

By the thirty-first day he had grown still weaker. Legs, arms and neck were wasted, could flex knees slightly, moved hands slowly, grip feeble and uncertain. Knee-jerk was abolished. Muscles of arms and legs did not react to faradic current. Did not seem to have usual pain on its application. Mind perfectly clear. Can say rather indistinctly, "no," "yes" and "papa."

At the end of the seventh week could walk if held under arms, but could not hold his head erect. Hands and feet still drop when the arms and legs are held out. Grip still quite weak and uncertain. When he walked his feet were lifted high as is done by an infant beginning to walk. Knee-jerk was still absent. Faradic current produced mild contraction in flexor muscles of legs and arms, but scarcely a tremor in the extensors. In order to fix his vision upon an object requiring him to turn his head, was obliged to make two or three jerky movements of the head. Speech was



still slow and indistinct, but few words having been added to his vocabulary. Swallowed his food slowly. While his appetite, sleep, etc., continued good, he gained power in speech, arms and legs very slowly, especially in his speech, so that four months after the measles began, his condition was as follows: General appearance that of perfect health, but on his feet he was uncertain, often staggering as he ran. Grip still weak and uncertain. Speech but little improved. Patellar reflexes established. All muscles of arms and legs react to faradic current; was slow in swallowing as well as in speech. Could not speak as clearly as his younger brother.

Improvement continued, but was very gradual and slow, so that at the expiration of one year from the time of attack of measles he was still weak, unsteady in his gait and tired much more easily than his little brother. His speech was still very defective. Could not articulate as well as his little brother nor hear so well as he could before his illness began. Still could not fix his gaze upon objects requiring a turning of the head without the jerky movement above referred to.

In substantiation of the diagnosis of measles the fact was mentioned that his two brothers came down with measles from sixteenth to twentieth day of his disease.

The following facts were noted as unusual: The temperature did not subside as is usual with the fading of the eruption; speech was absent from

the fifth to the twenty-eighth day; there was hyperæsthesia and muscular soreness followed by anaesthesia and paralysis, and all these in a case of measles otherwise not violent or apparently complicated.

The possibility of mixed infection was considered. Diphtheria was eliminated by the absence of false membrane and the remoteness and slightness of the albuminuria, also by the time at which the paralysis began.

The author expressed the opinion that it would conduce to accuracy of diagnosis if all cases of infectious fevers, presenting unusual symptoms, were made the subject of bacteriologic examination from the throat and nose.

The elimination of scarlet fever from the case, was looked upon as much more difficult, but its decided improbability was based upon the absence of any variation in the rash from that of an ordinary attack of measles, the absence of alteration in the character of desquamation, the absence of the strawberry tongue and the presence of only a trace of albumen which would have been, probably, much increased by the presence of scarlet fever.

Influenzal contamination was thought of, but considered improbable because of the absence of more pronounced catarrhal symptoms and catarrhal complications, *e. g.*, pneumonia.

Rheumatic neuritis was considered a plausible complication, and especial

ly because of the frequency of this disease in the child's mother.

The most plausible solution was thought to be that there was in this case a polyneuritis the result of a poison, generated in the system in all cases of measles, but acting in this case upon nerves especially predisposed; for, granting this, it became easy to account for the prolonged fever, dysphagia, hyperæsthesia, muscular soreness, anæsthesia, loss of reflexes, paralysis and loss of power of articular speech.

Reference was made to Leyden's brochure upon "Multiple Neuritis," published in 1880, in which he is said to have classed such cases as "Infectious Multiple Neuritis," saying: "The infectious form follows acute infectious diseases, such as diphtheria, typhoid fever, small-pox, scarlet fever and measles, also pneumonia, pleurisy, septicemia and erysipelas."

Osler was quoted as classifying these cases as "Post-febrile Polyneuritis," and as saying, in the "American Text-Book of Medicine," that "following typhoid fever, small-pox, measles and scarlet fever, a neuritis may be limited to the nerves of the legs, producing a paraplegia, or in some instances may cause widespread loss of power and rapid wasting, so that the cases are very often regarded as acute or subacute myelitis."

H. C. Wood was said to consider these cases as "post-febrile multiple neuritis," and the following quotation is taken from Wood and Fitz's "Practice of Medicine." "The neuritis

which follows exanthematous diseases most frequently attacks the legs, and is not rarely limited to the nerves of one leg."

Rotch was quoted as saying that paralysis following measles is a rare sequel, and that it is generally paraplegic in type.

#### DISCUSSION.

Dr. H. B. ALLYN.—There does not seem to be any doubt that this was a case of multiple neuritis which followed measles. Most of the cases of measles in which neuritis, or any form of palsy, has followed, have shown it during convalescence and most frequently from the latter part of the first to the end of the third week. One feature that strikes me as a little unusual is the persistent high temperature which in this case is apparently to be explained by the extreme toxæmia developed by the measles. The temperature continued at 103° and 104° at a time when one would expect a fall, but I presume the high temperature must have been due to the intensity of the poisoning, and if the poisoning was intense it is not difficult to understand why there should have been such widespread neuritis. It is well understood that peripheral neuritis may follow any of the infectious diseases. Cases have been reported following tuberculosis, leprosy, syphilis and septicemia and quite a number of cases have been reported following scarlet fever, small-pox, typhoid fever, pneumonia and as in Dr. Morton's case, measles.

In the paper on paralysis following measles which I wrote in 1891, there were 41 cases collected from the literature and several cases were overlooked, notably the cases of acute poliomyelitis following measles reported by Sinkler and some cerebral palsies reported by Sachs and Petersen. In the majority of these 41 cases the palsy seemed to be cerebral in origin. Of the cases, however, that were then classed as spinal, I have no doubt that several were certainly cases of peripheral neuritis and not of spinal origin. For example, a case of Perret's may have been an example of both peripheral and spinal palsy. The cases of Bergeron and Liégard of ascending paralysis may have been wholly peripheral if the pathology of Ross and Bury be adopted.

The pathology of neuritis following infectious diseases.—In recent years since more attention has been given to neuritis, many of the cases formerly looked upon as inflammatory or degenerative must be regarded as toxic in origin. One of the cases I collected, that of Schefer's, was probably toxic; coma persisted for three days and when this disappeared the child was unable to speak. Nevertheless recovery was remarkably rapid. The very rapidity of recovery, and if not the rapidity, its completeness in cases of paralysis following the infectious diseases, seems to indicate that the cause is really toxic and not a degenerative or inflammatory process. Gowers gives the most frequent cause as thrombosis. There is

one case following measles in which there were infarcts in the spleen and liver and a focus of softening in the brain. In this case the cause was almost certainly embolism. Whether the toxine acts by destruction of blood-vessels, thus permitting of hemorrhage or serous effusion, or whether it acts upon the nervous tissue or upon the motility of the neuron, is pure conjecture at present. The lesions found at death in chronic cases are of no value in explaining acute conditions.

DR. A. A. ESHNER.—The failure of speech noted in this case is an interesting symptom, which may be explained as a part of the multiple neuritis. This defect seems not to have been aphasic, and it may have been due to an inflammation of the hypoglossal nerve or perhaps of the tongue itself. I should like to learn from Dr. Morton whether or not there was evidence of paralysis of the palate, or of the pharyngeal structures.

DR. GRIFFITH.—Dr. Morton has, I am sure, unwittingly done me a little injustice in stating that this subject is not referred to in any of the textbooks of recent date. In the article on measles in Loomis' new "System of Medicine," I refer to paralysis as a sequel of measles, and I think I refer to Dr. Allyn's paper on the subject.

DR. MORTON.—I do remember consulting that work, but I was in a great hurry when I did so and perhaps it was because Dr. Griffith speaks of



paralysis in general instead of neuritis. I remember now that Dr. Griffith refers to it that he did mention Dr. Allyn's paper and paralysis following measles, but made no distinct reference to multiple neuritis.

It is my opinion that the reason the child did not speak from the fifth day on was that he was experiencing every time he spoke or swallowed, excruciating pain. The moment anybody would come into the room he would begin to cry, especially when a doctor appeared. His mother stayed out of the room. He would indicate that he was pleased when the shutters were closed and my idea was that it was merely a painful muscular condition due to the same cause as was the general muscular soreness and hyperæsthesia. Even to this day the child cannot say more than bi-syllabic words and says most of these very indistinctly, so I supposed the early absence of speech was due to the early stage, the inflammatory stage of the neuritis and the pain and tenderness attendant upon it.

There is one other thing to be explained, viz., the slowness in recovery. It is due to the fact that he has had no treatment all winter; the treatment was stopped the first of October and he has had no treatment of any kind and his surroundings at home are not very good; hence I think it is easy to account for the fact that he has improved very slowly.

DR. J. M. BROWN reported a case of green-stick fracture of the inferior maxilla, with photographs.

## DISCUSSION.

DR. ROSENTHAL.—I saw with Dr. J. Madison Taylor, a very peculiar case in a little infant that had fallen on its head and had a depression of the skull. It was probably half an inch in depth when we saw it, three or four days after it had received this injury. This depression gave no evidence of any compression of the brain, and has slowly receded into the normal contour of the cranium.

DR. J. MILTON MILLER gave a clinical report of a case of infantile scurvy.

Male, 10 months old, colored. Living amidst most unfavorable hygienic surroundings. Fed on condensed milk and boiled cow's milk for first weeks of life. Then, until brought for treatment, exclusively upon oatmeal gruel, a period of three months. Was fretful and tender to touch, with bleeding and swollen gums for two weeks before admission. When brought to dispensary, child had bleeding and swollen gums (over incisor teeth); swelling of both forearms above wrists and of both ankles. Handling of these parts caused screaming. No ecchymoses. Symptoms yielded quickly to orange and beef juice and fresh cow's milk.

Attention was called to rarity of disease among dispensary patients, the writer having found but 20 instances in a collection of 91 American cases; and to the increasing frequency of the affection, which seems to be coincident with the introduction of sterilized milk and the enormous



number of proprietary foods placed upon the market during recent years.

#### DISCUSSION.

DR. E. E. GRAHAM.—I have listened to the report with a great deal of pleasure, and simply wish to corroborate everything the doctor has said, excepting perhaps as to the frequency of these cases. It seems to me since the admirable article written a few years ago by Dr. Northup, many cases of scurvy have been recognized and not found their way into the medical journals. In the Children's Clinic that I hold there are certainly three or four cases of scurvy that appear every year. A majority of these cases are not as well marked as the one reported by Dr. Miller. What Dr. Miller says in regard to scurvy appearing in private practice is true, I think, and the fact that it occurs among the better class of our patients. These cases are, I think, not uncommonly mistaken for rheumatism or some form of cerebro-spinal disease. I have seen three cases that were mistaken for either cerebral or spinal lesions, curiously enough in the family of a physician. I think scurvy is quite a common disease; the well marked cases are perhaps uncommon, but the milder manifestations I think we very often meet with. The fact that children seldom develop marked cases is of course due to the fact that the children are rarely kept on a proprietary or an unsuitable diet after the very well marked symptoms develop.

DR. ROSENTHAL.—We see quite a

number where I practice. Most of our cases have bleeding gums, but do not show the profound symptoms Dr. Graham speaks of. The people have a method of feeding the children from early life on Zwieback, a food similar to toasted sweet bread, nothing else, not even milk, for a time. After three or four months of this diet the children show signs of scurvy. These children, after they recover from scurvy, become rickety, and it is quite a time before they get well. By the time they reach the age of five years they have usually become healthy.

DR. GRAHAM.—In speaking of my cases, I referred more to the pain that the children suffer from the swelling that occurred in the extremities, the continued fretfulness and cries of the child leading the parents naturally to suspect the presence of some cerebral or spinal lesion, not to any delirium or symptoms of that character.

DR. BROWN.—I am particularly glad to hear Dr. Graham call attention to the feature of the case that to my mind is a marked feature of these cases. If the child has become old enough to use its feet, one of the first things the mother notices is the refusal of the child to use these members as before. A case of this character occurred in my practice about five years ago in a very well-to-do family. The child was left considerably in the care of a nurse and the food of the child was not proper by any means, and it was to that we attributed this condition, as this is in the majority of

instances the cause. The first anxiety in that instance was due to the child's complaining on standing. This was supposed to be due to a new pair of shoes; the old shoes were replaced, but still the child refused to stand; next, pain about the arm coincident with the bleeding gums. None of this was supposed to be of any importance until my attention was called to the bleeding of the gums, with suggestion from the mother that she thought the bottle hurt its gum. I studied the case and had Dr. Dercum see the case with me in consultation. The child made a good recovery under proper treatment.

DR. CLARA DERCUM.—I reported a case three or four years ago in the *Medical and Surgical Reporter*. The child in that case had been fed on peptogenic milk powder and milk and cream sterilized. It had been suffering from bowel trouble. The child was apparently well in the fall and I vaccinated it. We attributed the fuss that it made about being taken up to the vaccination on the leg. I did not see the case for two weeks when I was sent for and found the child with a temperature of  $106^{\circ}$ . The vaccination had not healed; there was a rough ugly surface with occasional protracted bleeding. I examined the child somewhat carefully, and noticed it had swollen gums and a few purpuric spots on the body, and pain on lifting the child was marked. Immediately I recognized the condition, and the child was placed upon appropriate treatment; the high tempera-

ture worried me considerably, being  $106^{\circ}$ , although it did not remain that high very long. It was placed upon dilute sulphuric acid, orange juice and beef juice, and made a very rapid recovery. The vaccination was quite a long while healing up, and bled every now and then. Perhaps vaccinating the child might have precipitated the attack, but this case does show that children cannot be fed upon sterilized milk any length of time. This child had an appropriate food so far as we could think of, for the summer months. It was under good hygienic conditions, had been at Atlantic City most of the summer.

DR. GRIFFITH.—I agree quite thoroughly with Dr. Miller about the rarity of these diseases in dispensary practice. I have watched for them carefully for a number of years. I have never seen but one case and that is the case reported by Dr. Miller tonight. Although I have had a chance to observe many children at the University and the Children's Hospital, I am being brought pretty well to the conclusion that there is no one article of food which we can say is the special cause of scurvy. I mean by that we cannot say that it is necessarily proprietary food or that it is necessarily sterilized milk which produces the disease. The occurrence of scurvy is simply an indication that there is something wrong with the food for *that* child, although it may be the proper food for another child. That is the reason one child thrives upon oat meal and another develops scur-

vy; some children get scurvy on sterilized milk, a lot of others, however, do not. Some infants develop scurvy on proprietary infant foods and others escape it. This statement has nothing of course to do with the question of the best food for infants, or the one most liable to cause scurvy.

I might also say in this connection, that a committee has been appointed this year by the American Pediatric Society to take up the collective study of infantile scurvy, as another committee has of diphtheria for the past two years. The society wishes to send out questions to all who have seen cases, for the purpose of studying what are the causes in the production of infantile scurvy, and I shall be very glad when the circulars are ready to send them to any one who will let me know that he has had such a case.

Dr. MILLER.—As to the rarity of dispensary cases, I found very few cases reported and on inquiry among my friends not only in dispensary practice but among the same classes of private patients, that it appeared to be equally rare. I think the point taken by our president is a very good one, that it is a food not suited to a particular patient that causes scurvy. I should rather put it that it is the want of a varied diet. We all know that prior to ten years ago condensed milk was an extremely popular food in this city. Dr. Albert H. Smith,

who had an enormous practice among well-to-do people, prescribed condensed milk for almost all his patients. Hundreds of babies in this city were brought up on condensed milk and yet scorbutus was very infrequent. I think the reason scurvy did not develop in the period referred to was because at that time children were put upon a varied diet much earlier. Children now are brought up much more carefully than they were, owing to the teaching of physicians and particularly to the publication of books on the domestic management of children, and the result is that they are kept upon an unvaried diet until a much later period than they were formerly. I believe among recent writers the only one who denies that food has anything to do with infantile scorbutus is Ashby of Manchester. He contends that scurvy is simply a hemorrhagic diathesis, an exaggeration of the anemia which occurs in rachitis and certain dyscrasias of children. He supports this view with quite a number of cases in which scurvy has developed in very young infants who have eaten potatoes, which are supposed to have especial anti-scorbutic qualities, but I think the fact that scurvy develops in children who do not have rickets or any other dyscrasia, although a great many of them do and so often follows the use of prepared foods, militates very strongly against this view.

## EDITORIAL.

### HYDATID CYSTS OF THE FEMALE PELVIC CAVITY.

HYDATID cysts in the pelvis are very infrequent, and it is with difficulty we can collect over one hundred reported cases. Generally, these cysts are found in the pelvis, contracting numerous adhesions with the neighboring organs, and thus rendering it a difficult matter to demonstrate their starting point. The majority, however, are sub-serous and independent of the viscera of the pelvic cavity. Nevertheless, a few have arisen in some pelvic organ; Bröse removed an hydatid cyst of the ovary, and cysts of this nature have been observed by Péan, Porak, and others, and lastly, a case reported by Doléris proves that the tubes may also be the seat of echinococcus cysts.

According to Davaine, these cysts are found in the following organs: in the proportion of 2 per cent in the uterus, 41 per cent in the ovary, 7 per cent in the pelvic cavity. In a series of 88 cases classified according to their seat, we have: ovaries, 3; uterus, 23; tubes, 1; and pelvic cavity, 61.

As to the frequency of hydatid cysts in the various anatomical systems, the organs contained in the pelvic cavity came second in rank. The precise localization of these cysts is very difficult to demonstrate, and their starting point cannot always be

made out as already stated. Freund believes that all these cysts are sub-serous at first and that they never develop in the interior of the pelvic viscera. Esquirol, while performing an autopsy of a mentally diseased woman who had committed suicide, found two hydatid cysts of the liver and another of the same nature in the left ovary. Bröse reports the case of a typical hydatid cyst of the ovary, while Doléris gives an account of one developing within both tubes and in spite of the large mass formed had not ruptured at any point. The cyst of the uterus reported by Péan is similar.

In relation to the uterus, which may be considered as the central organ of the female pelvic cavity, the usual site of these cysts is, according to Porak, as follows: behind the uterus 10, recto-vaginal septum 4, Douglas' cul-de-sac 2, in front of the uterus 2, in front and on sides 2, behind the rectum 1.

We would, however, remark that a number of cysts discovered in and operated on through the pelvic cavity, had not started there. They had come down from the abdominal cavity from the liver or spleen. Sometimes they were developed on the walls of the pelvic cavity, either in a muscle or the iliac bone, as well as in the vaginal walls.



Hydatid cysts are generally round without bosses on their surface. Their size varies greatly. Their surface is smooth, peculiarly white in color and at certain points fibrous bands are to be found binding them intimately to the pelvic viscera, parietal peritonæum and intestine. In consistency they are hard, and at the same time elastic, but generally a certain degree of fluctuation can be made out which allows one to recognize that he is dealing with a liquid neoplasm. The consistency is everywhere equal.

Freund and Bröse believe that in order to reach the pelvic cavity the echinococcus starts from the liver by the vena cava or from the intestine by the lymphatics and by the right heart reaches the pulmonary circulation. From the left heart they are thrown into the general circulation. The fact that vesicles have been found by Bröse in the vessels would uphold this theory. Lawson Tait on the other hand thinks that the invasion of the peritonæum by hydatids follows the rupture of a cyst in the liver and the echinococci become directly grafted on to the serous membrane. Seeheyron believes that the migration may take place either by the blood, by effraction through the intestinal walls, or by rupture of a daughter vesicle of an abdominal cyst or one situated in the liver, mesentery or kidney.

The symptoms at the beginning have nothing characteristic, and are common to a number of tumors developing in the pelvis. Exploration

will give more exact ideas. The tumor will be found as a uniform hard and elastic rounded mass with a uniform consistency, and no hard or fluctuating points will be detected, as in the case of cystic sarcoma for example. Fibroids alone are similar in feel to echinococcus cysts and they are usually mistaken for the former. It is to be remarked that the particular hardness of these cysts increases at the time of labor if the tumor should by chance coincide with pregnancy. One other absolutely pathogenic character has been reported in five instances; this is the spontaneous issue of hydatid vesicles either through the vagina, when the cyst occupied the uterus, or *per rectum* when there was a perforation of the intestine and a communication was established between this and the cystic pocket.

It is always impossible to detect the commencement of echinococcus cysts of the pelvis. The duration of these is at least five years and may extend over fifteen, or even twenty. Left to themselves, the patients will die from cachexia and sometimes, either after a puncture or even spontaneously, if the cyst becomes inflamed and suppuration occurs.

The rupture of the purulent pocket usually takes place into the rectum, occasionally into the vagina. Spontaneous recovery is the exception and has only been noted in two cases, proved by a necropsy.

As to treatment, many are the methods that have been lauded.

Puncture, which gives good results in echinococcus cysts of the liver, cannot be applied for the cure of pelvic tumors of this type, because by imperfect puncture the cyst will fill again, or what is worse, may suppurate.

Incision presents this advantage, that the pocket may be completely emptied, but as by this means the cyst walls themselves cannot be removed, they may degenerate and give rise to a pelvi-peritonitis.

Laparotomy is the proper operation and has been employed by Doléris, Schwartz and Schroeder. After the growth has been brought into sight it must be separated from the neighboring organs, but care must be taken not to rupture the cyst while breaking up the adhesions. If the adhesions are

thick, it is better to puncture the cyst, rather than that its contents should escape into the peritoneal cavity by rupture.

If the entire cyst cannot be removed, marsupialisation may be practiced, but if the very adherent parts only cover a small surface, the pocket may be cut closely off from the adhesions and a very carefully performed cleaning of this surface should be done, after which the abdominal cavity is closed. In closing it is well to recall the fact that Bouilly has removed an hydatid cyst of the utero-rectal septum, and the cul-de-sac of Douglas by vaginal hysterectomy, and we would suggest that when this operation is possible it is the one to select in these cases.

## BOOK REVIEWS.

*(All Exchanges and Books for Review should be sent to DR. C. G. CUMSTON, 871 Beacon Street, Boston.)*

### A MANUAL OF INFECTIOUS DISEASES.

By E. W. GOODALL, M.D., and J. W. WASHBURN, M.D. P. Blakiston, Son & Co., Philadelphia. Price \$2.00.

This scientific, yet practical and suggestive volume, is written by two men prominently associated with the large hospitals of London. Three chapters are devoted to "Fever," "Contagion and Infection," and "Disinfection," and then in successive chapters the various infectious diseases are considered. We detect few differences from American writers,

and these in the main are of little importance. Intubation evidently is not in favor with our English brethren, presumably because they do not know how to perform it.

There are five beautiful plates which show better than any similar ones we have seen, the bacilli of Diphtheria, Influenza, Typhoid, Erysipelas and Anthrax.

Numerous diagrams present in striking pictorial form the distribution of the various rashes, and characteristic temperature charts assist in making up an up-to-date book on these subjects. We anticipate for the

publishers a large sale of this excellent treatise.

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**HYPNOTISM AND ITS APPLICATION TO PRACTICAL MEDICINE.** By OTTO GEORG WETTERSTRAND, M.D. Authorized translation from the German edition by Henrik G. Petersen, M.D. G. P. Putnam's Sons, New York, London. 1897.

This work, first published in a Swedish medical journal, and later translated into German, and enlarged, is presented to us in very excellent English by Dr. Petersen. The work is thoroughly scientific, being based upon the investigations of Liébeault, Bernheim, Weir Mitchell and others. A bibliography of over a hundred authors attests the great care in preparation. The large number of clinical cases reported makes the volume interesting and to the ordinary mind far more conclusive than any mere didactic statements.

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**ALL ABOUT THE BABY AND THE PREPARATION FOR ITS ADVENT,** together with the Homœopathic Treatment of its Ordinary Ailments. By ROBERT N. TOOKER, M.D. Rand McNally & Co., Chicago and New York. 1897.

This book which is dedicated to and intended for mothers is distinctly better than most such books of family medicine. The method of writing is by question and answer and these questions cover pretty much all the subjects which a pregnant woman or a young mother is likely to ask herself or others. The answers seem marked by simplicity, common sense and practicability. Dr. Tooker is for the most part independent in his

advice, quoting from others but rarely, but in the main he is in accord with the best medical thought of the day. Even in the matter of Therapeutics there is surprisingly little for criticism or difference of opinion. Printing and binding are of the best.

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**INFANTS' WEIGHT CHART.** Designed by J. P. CROZER GRIFFITH, M.D., Clinical Professor of Diseases of Children in the University of Pennsylvania. W. B. Saunders, publisher, Philadelphia. 25 charts in a pad. Price 50 cents per pad.

A very useful chart covering the first two years of a child's life, and allowing opportunity for comparison with a normal weight line running in that time by regular weekly gradation from  $7\frac{1}{2}$  to 27 pounds.

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**NURSERY PROBLEMS.** Edited by DR. LEROY M. YALE, Lecturer Adjunct on the Diseases of Children, Bellevue Hospital Medical College, New York City. New and enlarged edition. The Contemporary Publishing Company, New York. 1897.

This handy little volume presents in enlarged form the answers which the author has made to questions submitted to him as Medical Editor of "Babyhood." The questions are vital and practical because they come direct from the mothers and cover a large proportion of the problems that are so frequently referred to us. The answers are sensible, simply expressed, and conservative, and are in good part the cause of the widespread excellent reputation of Babyhood. We commend the book to physicians as well as mothers.

WARNER'S POCKET MEDICAL DICTIONARY OF TODAY, Comprising Pronunciation and Definition of 10,000 Essential Words and Terms used in Medicine and Associated Sciences. By WILLIAM R. WARNER. William R. Warner & Co. Philadelphia, 1897. Price 75 cts.

A very complete little book of convenient size and evident usefulness. The definitions are necessarily brief but suggestive, and usually bring out the most important point. The volume is really of pocket size and yet the print is excellent. Not least useful is the pronunciation of all words at all doubtful.

*Leçons Cliniques sur les Maladies des Voies Urinaires.* Par le PROF. FELIX GUYON. Three volumes. Paris, 1894-'96-'97. J. B. Baillière et Fils, Publishers. Price \$7.50 (37 frcs. 50 cent.).

This excellent work, complete in three volumes, written by one of the most prominent genito-urinary surgeons of the day, is now before us. The first volume is devoted to the consideration of functional symptoms of the genito-urinary system and the pathological changes of the urine.

The second volume considers the important and interesting question of urinary poisoning, and is a masterly contribution to the subject.

Volume III takes up the questions of antiseptics, catheterization and anesthesia in genito-urinary work.

To all those working in this field as well as to the general physician, Prof. Guyon's writings have always been of greatest use, and the three volumes here mentioned can only be most highly commended as being both clearly written and full from begin-

ning to end with practical points in the treatment of diseases of the genito-urinary system.

*Chirurgie de Voies Urinaires.* Par le DR. E. LOUMEAU, Professeur de Clinique des Maladies des Voies Urinaires. Two volumes. Bordeaux, 1894-'97. Feret et Fils, Publishers.

These two volumes by the well known Bordeaux surgeon are clinical studies on certain affections of the genito-urinary system.

Volume I contains twenty-three chapters on various subjects, while volume II has twenty-seven. The varied and interesting contents of these two books cannot be detailed here for want of space, but it may be truly said that there is not a line in either that is not worth reading.

There are many original drawings and plates, and the printing and paper are excellent.

*Parallèle entre l'Accouchement Pré-maturé et la Symphyséotomie.* Par le DR. AUDEBERT. Paris, 1897. G. Steinheil, Publisher.

This brochure of 80 pages is a careful and complete study of comparison between premature labor and symphyseotomy. The author's conclusions, based on forty-five cases, are as follows: On account of the great mortality of premature infants and the excellent results as to the mortality of the mother in *aseptic* symphyseotomy, as well as a low mortality of children in this operation, the surgeon attending a woman with a pelvis of 8.5 to 9.5 centimeters, who is in the last months of pregnancy, should perform symphyseotomy when labor begins, which is a safe and sure means



of saving the child as well as respecting the life of the mother.

THE TREATMENT OF UTERINE FIBROIDS. By F. H. MARTIN, M.D. Chicago, 1897. The W. T. Keener Co., Publishers. Price, net \$1.00.

This little volume contains ten lectures by its well known author describing the various treatments, both medical, electrical and surgical, of uterine fibroids. It is well written and instructive, although on many points we cannot agree with the writer. The subject, however, is quite thoroughly dealt with and will certainly be read with profit.

*Traité de Chirurgie Clinique et Opératoire.* Published under the direction of PROFS. A. LE DENTU and PIERRE DELBET. Vols. I, II, III, IV and V. Paris, 1896-'97. J. B. Baillièrre et Fils, Publishers.

We have received the first five volumes of this magnificent system of surgery, which will be complete in ten volumes, edited under the direction of two most competent surgeons. To give a proper analysis of the volumes thus far issued would require many pages, so that we can only give the contents of each.

Volume I is devoted to general pathology and diseases of the integuments, the articles coming from the pens of Nimier, Ricard, Faure, Le Dentu, Lyot, Brodier and Delbet.

Volume II considers the diseases of the bones, written by Rieffel and Mauclore. Volume III treats the diseases of the joints, muscles, tendons and serous bursae, the articles being contributed by Cabier, Mauclore, Chipault, Michel, Gangolphe and Lyot.

Volume IV contains the diseases of the nerves, arteries, veins, lymphatics, cranium, rachis and spinal cord, the contributors being Schwartz, Delbet, Brodier and Chipault. Volume V is devoted to the diseases of the eye, ear, nose, cranium and face (congenital tumors and deformities), and the jaws, by Terson, Castex, Le Dentu and Nimier.

DISEASES OF THE EAR, NOSE, AND THROAT, AND THEIR ACCESSORY CAVITIES. A condensed text-book. By SETH SCOTT BISHOP, M.D., LL.D., Professor in the Chicago Post-Graduate Medical School and Hospital; Surgeon to the Illinois Charitable Eye and Ear Infirmary. Illustrated with 100 colored lithographs and 168 additional illustrations. One volume, royal octavo, pages xvi, 496. Extra cloth, \$4.00, net; Sheep or Half-Russia, \$5.00 net. The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street, Philadelphia.

Dr. Bishop has written this book on account of demands made by students and physicians for a practical work on the subject of which it treats.

We think that the author has described well and simply the various diseases of the ear, nose and throat, and that the object in view has been attained.

The illustrations are numerous and much space has very properly been given to treatment.

We cannot say too much in praise of this great work which when complete will cover the field of surgery, with all its specialties, in a manner that has as yet not been realized in any other system, and from the distin-

guished list of contributors it will be seen that no comment is necessary.

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*Ueber Puerperale Psychosen.* Von Dr. OSWALD KNAUER. Berlin, 1897. S. Karger, Publisher. Price 40 cents.

This is an interesting contribution to the study of mental diseases occurring in the puerperum. It is well written and the question is thoroughly studied by its author, whose competence in this matter is undoubted.

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ATHLETIC SPORTS. Published by Charles Scribner's Sons. New York, 1897. \$1.50.

This is an excellent volume of Scribner's Out-of-door Library. It is of much interest from a medical point of view because of the chapters, "The Physical Proportions of the Typical Man" and "Physical Characteristics of the Athlete," by D. A. Sargent, M.D., and on "A Doctor's View of Bicycling," by J. West Roosevelt, M.D. There are also well written chapters on golf, tennis, bicycling, surf bathing and country clubs by experts in each line. The volume is well illustrated with an abundance of good pictures.

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HOW TO LIVE LONGER AND WHY WE DO NOT LIVE LONGER. By J. R. HAYES, M.D. J. P. Lippincott Company. Philadelphia, 1897. \$1.00.

Prof. Bichat's rule that the duration of mammal life is six times the length of its period of growth is the text of this little volume. The author believes in preventive medicine, and begins with the pre-natal conditions. Inheritance, digestion, hygiene,

rest, liquors and tobacco are each considered in their relation to length of life. The book commends itself to our common sense and experience.

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TRANSACTIONS OF THE N. Y. STATE MEDICAL ASSOCIATION. Volume XIII. Edited by E. D. FERGUSON, M.D.

The usual amount of excellent reading matter is to be found in this volume of the association's transactions.

We would particularly call the attention of our readers to the address of Dr. Charles Phelps, as well as to the papers and discussions on enlargement of the prostate.

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THE DEVELOPMENT OF THE YOUNG CHILD WITH REFERENCE TO EXERCISE. By W. P. MANTON, M.D. Detroit, Mich. Reprint.

This is a paper read before the Detroit Association for the promotion of physical culture. The author very wisely advocates a wider knowledge on the part of parents and teachers of the meaning of the processes of life of young children. He also makes a strong plea for fresh air and good light and a physical culture which shall ensure a due development of all parts of the body.

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MEMORY TRAINING. A Complete and Practical System for Developing and Confirming the Memory. By WILLIAM L. EVANS, M.A., Glasgow. A. S. Barnes & Co., Publishers. New York City. Price \$1.00.

Few men need such training more than physicians. The system pre-

sented is carefully elaborated and practical presentation made of it. There are 23 chapters or lessons, each closing with a series of clear-cut questions covering the subject matter of the lesson.

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We take pleasure in here appending a list of books now in preparation and soon to be issued by Mr. W. B. Saunders, of Philadelphia:

An American Text-Book of Genito-Urinary and Skin Diseases. Edited by L. Bolton Bangs, M.D., late professor of Genito-Urinary and Venereal Diseases, New York Post-Graduate Medical School and Hospital, and William A. Hardaway, M.D., Professor of Diseases of the Skin, Missouri Medical College.

An American Text-Book of Diseases of the Eye, Ear, Nose and Throat. Edited by G. E. de Schweinitz, M.D., Professor of Ophthalmology in the Jefferson Medical College, and B. Alexander Randall, M.D., Professor of Diseases of the Ear in the University of Pennsylvania.

Macdonald's Surgical Diagnosis and Treatment. By J. W. Macdonald, M.D., Professor of the Practice of Surgery and of Clinical Surgery, Minneapolis College of Physicians and Surgeons.

Hirst's Obstetrics. A Text-Book of Obstetrics. By Barton Cooke Hirst, M.D., Professor of Obstetrics, University of Pennsylvania.

Penrose's Gynecology. A Text-Book of Gynecology. By Charles B. Penrose, M.D., Professor of Gynecology, University of Pennsylvania.

Senn's Genito-Urinary Tuberculosis. Tuberculosis of the Genito-Urinary Apparatus, Male and Female. By Nicholas Senn, M.D., Ph.D., LL.D., Professor of the Practice of Surgery and of Clinical Surgery, Rush Medical College, Chicago.

Anders' Theory and Practice of Medicine. A Text-Book of the Theory and Practice of Medicine. By James M. Anders, M.D., Ph.D., LL.D., Professor of the Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia.

Moore's Orthopedic Surgery. A Manual of Orthopedic Surgery. By James E. Moore, M.D., Professor of Orthopedics and Adjunct Professor of Clinical Surgery, University of Minnesota, College of Medicine and Surgery.

Heisler's Embryology. A Text-Book of Embryology. By John C. Heisler, M.D., Professor to the Professor of Anatomy, Medical Department of the University of Pennsylvania.

Mallory and Wright's Pathological Technique. Pathological Technique. By Frank B. Mallory, A.M., M.D., Assistant Professor of Pathology, Harvard Medical School; and James H. Wright, A.M., M.D., Instructor in Pathology, Harvard Medical School.

Sutton and Giles' Diseases of Women. By J. Bland Sutton, F.R.C.S., Assistant Surgeon to Middlesex Hospital, and Surgeon to Chelsea Hospital, London; and Arthur E. Giles, M.D., Assistant Surgeon, Chelsea Hospital, London.

# ANNALS OF GYNECOLOGY AND PEDIATRY.

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## ORIGINAL COMMUNICATIONS.

### SOCIOLOGICAL ASPECTS OF GONORRHŒA.\*

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IN choosing the subject of this paper, I have been led by the immense importance of the remote effects of gonorrhœa on society at large, rather than by any expectation of adding to the scientific knowledge of the disease, which I shall assume that this learned assemblage possesses. The full appreciation, however, of the serious and far-reaching consequences of gonorrhœal infection, acting as it does on the innocent and unfortunate victims, who are our patients, is so recent, and as yet is limited so far, even within the profession, to those who have peculiar opportunities of observing the ruined lives and blasted hopes, the suffering, sterility, illness and death, which ensue

from the infection, in all ignorance, of young wives as well as of foolish girls, that I feel that a society like this has a duty, which it owes to the profession and through this to the public, in taking care that in all proper ways the knowledge of these dread results shall be diffused throughout society, so that at least the plea of ignorance shall no longer be available to shield those who bring disease and death into their own families, and who ruin the lives of those whom they have sworn to cherish and to protect.

In considering the subject of gonorrhœa we realize that it is a factor of the greatest importance in influencing the fortunes and destinies of nations as well as of individuals, inasmuch as it is essentially a disease

\* Read before the American Gynecological Society, at Washington, May, 1897.



of dense populations and of the congested life of cities, thence spread broadcast by the influences of civilization and commerce, and acting wholesale as a check on reproduction. Although its full importance has only become apparent within the last few years, yet we cannot doubt that for ages this disease has acted in the same way, and, if time permitted, I could trace the connection of this influence with the historical facts known as to the degeneration and disappearance of conquering races, when subjected to the influence of older and more corrupt civilizations, as well as to the decline and fall of successive empires and peoples.

This disease, then, is to be considered as a blight or parasite, following civilized man as other pests prey upon cultivated crops and domestic animals; in a large way it may be said to limit the reproduction of those individuals, families and societies who cannot or will not limit their sexual activity to the conditions imposed by the conditions of civilization, and thus, by the elimination of the erotic and unchaste, it may prepare the world for the future man imagined by Spencer, who will live without difficulty within the limitations imposed by his environment.

Unfortunately, this ideal man is a weak creature, who always has been, and probably always will be overpowered and enslaved by a less moral and more virile man, so that the whole process has to be repeated indefinitely.

Unfortunately, also, the suffering and death involved in this slow working of the disease, falls not on the unchaste man, but on the innocent wife, and often on miserable infants, blinded from birth, or infected in tender childhood, so that the medical profession, and especially that part of it represented by this society, has a duty to perform, commensurate with the gravity of the interests involved.

It is not necessary here to consider the manifestations of the disease at any length, and I will merely allude to the progress of the infection from the ostium vaginæ through the uterus, and the Fallopian tubes to the peritoneum and the ovaries, with all the baleful effects and dangerous conditions therein involved; to the equally fatal invasion of the urinary tract, through the urethra, the bladder, and the ureter, to the kidney; to the infection of the rectum with the consequence of incurable proctitis and serious stricture; to the occasional deposit of the gonococci in the joints, in the endocardium, or in the deeper structures of the eye; to all the unfortunate and ineradicable sequelæ which Saenger has described as residual gonorrhœa. Who shall estimate the destructive effects of gonorrhœa in childbed, either for the mother or the child? Who compute the misery and public loss occasioned by the prodigious number of cases of blindness caused by this disease? It seems like a mockery of our art that we are powerless to prevent the extension or arrest the progress of these

affections in women, and, although the statistics of Bumm show that only some ten per cent of those who are affected with gonorrhœa suffer from inflammation of the Fallopian tubes and ovaries under the best treatment, and when carefully watched in hospitals, yet this proportion is an *opprobrium medicinae* and constrains us to study how to limit and prevent an infection, which we are so powerless to arrest or cure.

Now, in studying to find out what we can do as a profession to limit an unavoidable disaster, we find ourselves in the presence of the Social Evil, old as humanity; in face of ineradicable passions and desires, which are only recognized as evil as civilization dawns, and morality becomes a social desideratum. For the purposes of this and countless succeeding generations, we must accept human nature as a fixed quantity, which cannot be changed. In fact, the great interest in the most ancient records of literature is precisely the exact similarity of human nature in all times and places. Men have always been alike and so have women. Is it not written in the Talmud that before the creation of Eve, Adam had a first wife, Lilith, a sprightly person with blond hair and an emotional nature, who would not live with poor Adam, because he was slow and because he was a farmer, and who ran away with an interesting and gentlemanly demon?

In the good days, before the advent

of these agnostic and degenerate times when we had to read the Bible on Sundays, and made our own selections, did we not peruse with interest the story of the patriarch who took a walk and met a veiled lady, and finally left his staff and his bracelet with her until he could send her a kid in the morning? It not the old Testament full of such testimony to the immutability of human nature? Whether we regard the thunders of the prophets, the mythology and poetry of the Greeks, the scoffs of the Roman satirists, or the accounts of history, we are met by the same facts of the desires of men and the weakness of women. Would the great poet and great physician have been true to nature if he had made Gretchen fall in love with Faust because he was good and pure, because he went to church and worked diligently and gave his wages to his mother? No, what disturbed her rest and made her heart heavy was

“Sein hoher Gang,  
Sein’ edler Gestalt,  
Seines Mundes Lächeln,  
Seiner Augen Gewalt”

and so it will be forever.

We cannot change human nature, then, and we must accept prostitution and unchastity as facts which we cannot ignore, nor expect to see materially diminished in our time, if ever. It behooves us, however, to take notice of the fact that in this generation and in this country, we are living under conditions which never occurred be-

fore and can never occur again, I mean that suddenly, and on a huge scale, a great continent has been filled with a mighty nation of 70,000,000 or more of people; that within one generation enormous cities have sprung into existence, filled with mixed masses of humanity coming from all the corners of the earth, and sundered from all ties which bound them in their original homes; that within one generation wealth has increased so enormously that all the old standards and ideals of life have changed; that all this country has been so bound together by a network of railroads, telegraphs and telephones, that the old distinctions between town and country are substantially obliterated; that by the wonderful expansion of the press, and of the literature of fiction, all the details of every sort of criminality are introduced into every household; and finally, that suddenly and within the last few years, the position of woman has changed, so that in all these cities there are great armies of young girls, living alone or in boarding houses, separated from all restraints of homes or family, poor, but filled with a natural desire for such clothes and diversions as they can in no way obtain from their slender wages. As if all this were not enough, at the World's Fair, some years ago, there was a deliberate collection and introduction to our whole people of all recondite and previously unknown forms of sexual vice from all corners

of the earth, with results which have been too apparent since. One result of the growing demoralization is observed in the vast number of divorcees, equal to one in ten of all marriages in some parts of the country, and in the laxity of public opinion and of legislation on the subject of divorce. It is interesting to recall the words of the Roman poet, written when degeneration was overtaking that mighty empire, and when the Kutchi-Kutchi dance first came to Rome:

*Fœcunda culpæ sæcula nuptias  
Primum inquinavere et genus et domos;*

*Hoc fonte derivata clades  
In patriam populumque fluxit.*

*Motus doceri gaudet Ionicos  
Matura virgo et fingitur artibus:  
Jam nunc et incestos amores  
De tenero meditatur ungui.*

I submit, then, that this generation and this country are passing through such a transition as has never occurred before and can never occur again, and it behooves us as physicians and as citizens to do what we can to prevent the rising tide of luxury and licentiousness from engulfing our country as it engulfed the Roman empire. Again the question arises what we can do, in our own line of work, and especially in regard to the subject of the limitation or diminution of gonorrhœa.

This brings us again face to face with the question of the regulation and medical supervision of prostitution, for it is evident that the simple,

me-honored and rational Oriental system of locking up all the women is not available. Now it is easy to talk of the regulation or even of the suppression of prostitution. The latter has been attempted by popes, emperors, kings and republics, but it has never succeeded and it never will; not even Parkhurst and his supporters can do anything more than drive open prostitution into more insidious and clandestine forms. At any rate, the suppression of prostitution is a question for the police and not for the medical profession.

When, however, we come to consider the subject of the regulation of prostitution, which is usually attempted when its total suppression is found to be impossible, we find that it is not only a question of police, but also very largely one involving the medical profession, since both in diagnosis and treatment the police must depend on medical assistance. It is, therefore, of the utmost importance that our profession should have a clear opinion of its duties in this matter. Now, it is said of a great English bishop that once when the question of enforcing temperance by prohibition of liquor selling, was under discussion, he said that "he would rather see England free than England sober," and similarly in this age and country we can readily see that the evils arising from the attempt to regulate prostitution by medical examination and certification would far outweigh any advantages obtained, and for the following reasons:

In the first place, as far as concerns gonorrhœa, the attempt to suppress and extinguish the disease would be entirely futile, since the diagnosis is too difficult, the duration in a latent form too long, and the fact of cure too uncertain. Moreover, a very large proportion of cases of gonorrhœa are acquired not from prostitutes by trade, for they are instructed in their business, live under some discipline in brothels, and keep themselves clean, avoiding infection by knowledge, and being driven out when known to be diseased; but the most dangerous women are precisely those who are not prostitutes by trade, but who are unchaste enough to submit to opportunities of infection, ignorant enough now to know their danger or avoid it, shame-faced enough to conceal their disease, and so keep spreading the malady, to the astonishment and dismay of those recipients of their equivocal favors who had congratulated themselves on being absolutely sure of immunity.

Medical regulation and supervision of prostitution is, therefore, inadvisable, because it is ineffective, inadequate, and promotive of a false sense of security from infection, which is not and cannot be warranted in fact.

Secondly, such a regulation is to be avoided and rejected by the profession in its own interests, because its members would be mixed up in a dirty and demoralizing business, in affording its services under police



control, as it exists in our great cities; for if the mere enforcement of our present laws demoralizes the police force and leads to all the shameful abuses, which exist already, and of which a small part are occasionally disclosed, how much greater would be the opportunity for the cruel oppression and blackmail of prostitutes, and for the shameful abuse of power over women, who might be entirely innocent, were there laws in existence giving the police arbitrary power to arrest as prostitutes, and force to submit to examination and registration, those whom they might suspect or maliciously declare to be of unchaste life. That such abuses would be of only too frequent occurrence, no one can doubt who has any knowledge of the working of such laws in foreign countries, where the police are under far stricter control than here, and it might easily happen that the police doctor, who was hired to take part in the devious operations of the police of chastity and public morals, would be more of a prostitute than some of those whom he forced to submit to his examinations.

If we omit from present consideration the manifest injustice of prosecuting and punishing women for sexual immorality, while letting men go free, which will never be tolerated in a free country, we must recognize the fact that no laws, and no system of control, will have any effect in abolishing gonorrhœa, which does not sequestrate and cure not only the wo-

man, but also the man, who is infected, and who in turn imparts infection. Such laws can never be passed or enforced, at least in the present stage of our civilization, and therefore for practical purposes as physicians, we must recognize the fact that the social evil, and all its concomitant misery, vice and disease, exists and will continue to flourish.

Our province is to counteract and limit the spread of the venereal diseases which cannot be abolished, as well as to cure the victims as far as possible. In doing this, a great deal can be accomplished by our united authority. Our office is to instruct and enlighten the community, so that public opinion may be formed, which is the only reliable foundation for the enforcement of laws, and our opinion will be sought as to the advisability of passing laws in the interest of public morality and of checking the spread of venereal diseases.

It is, therefore, interesting to notice the legislation which has already been proposed or attempted, and which concerns the medical profession, at least in so far that the diagnosis of disease is and must remain a medical question. Laws have been proposed requiring:

Examination and certification of the health of all persons before marriage.

Making infection with venereal diseases a civil tort, and if done knowingly, a criminal offense.

Making it incumbent on physicians to declare to the board of health all

cases of venereal disease under treatment.

Making infection with venereal disease a ground for divorce and damages, even if the disease was acquired before marriage and was latent at the time of marriage.

Making the treatment of venereal disease by druggists a misdemeanor.

Probably various other laws have likewise been proposed, but the above-mentioned will show the trend of opinion among those who have faith in the reformation of man by statute. It is evident that at present such laws could neither be passed nor enforced, because they would not be supported by public opinion. Nevertheless, it is impossible to say how rapid may be the progress in the enlightenment of the community in regard to the necessity for its protection of laws which now seem almost absurd. Within a few years, we have witnessed an enormous progress in public opinion, under the guidance of the medical profession, in regard to sanitary matters, such as water supply, milk supply, plumbing, the sale of tuberculous meat, diseased fowl, unhealthy fruit, the abolition of the habit of spitting on floors in public places, and other matters too numerous to mention. When the public understands that gonorrhoea is a pest that concerns its highest interests and most sacred relations, as much as do small-pox, cholera, diphtheria, or tuberculosis, all legislation which is feasible and necessary will follow, and will be enforced.

Meanwhile, it is the duty of our profession to instruct itself, and then to enlighten the community, as to the importance and gravity of this disease, and certainly no part of the profession has such an opportunity to observe the misery due to *gonorrhoea insontium* as have the members of our society, or the practitioners of our specialty. It cannot be said that we are wanting in our duty in reporting to the rest of the profession the results of our observations; it rests with the general practitioners to instruct the public, not in the secular press, not obtrusively, not in public gatherings, but individually, as family physicians and trusted medical advisers, and indirectly through conversation with clergymen and jurists, through schoolteachers, Christian Associations, medical supervision of militia, police, firemen, colleges and boarding schools for both sexes.

More important than all, however, is the direct instruction of the young of both sexes, by their parents. Men require clean wives, and as a rule they get them. When young women know that dissolute bridegrooms imply infection, severe illness, and ultimate loss of their reproductive organs, they will not marry unclean men. When fathers and brothers know, as we know, that giving their loved ones in marriage to men about town is dangerous, they will not permit such men to court and marry them. When the mother-in-law knows why her child gets "inflammation" just after marriage, a great ter-

ror will overshadow the miserable husband, and he will wish that a mill stone were hanged about his neck and that he were drowned in the depths of the sea. When pus-tubes in the wife mean disgrace and infamy to the erring husband, he will be more desirous of leading a moral life, or at least he will make sure that he is really cured before he "commits matrimony." Thus, each member of the profession can do his duty to his profession and to the community, gradually, quietly and efficaciously, as a physician and as a citizen, and may merit the blessing asked for "all instructors of youth and all means of true knowledge virtue and piety."

Next the practitioners must realize the responsibility which rests on them in treating gonorrhœa in men so as to really cure it, or at least of finding out whether the disease is entirely eradicated, and for this a high degree of scientific accuracy is required and demanded. The patient must be made to take the matter seriously, as something on which the whole future of his married life will depend. There should be abundant provisions for the scientific treatment of the disease, in clinics and hospitals, for those who really cannot pay for treatment and are nevertheless likely to infect innocent others and so spread the disease. The whole subject should be considered, as a grave contagious malady threatening the well-being of the community, and treated accordingly.

Lastly, we have to consider the

medico-legal responsibility which rests on the physician in case of a false diagnosis, or even in a case where he cannot prove his diagnosis to be accurate by bacteriological tests. It is evident that the gravest consequences may follow such an error, for in the case of a young man about to marry, failure to recognize latent disease may throw the whole responsibility for subsequent infection onto the physician, while in the case of married people endless domestic misery may be the result of a mistake in diagnosis, and it is not always the person who comes to the physician for treatment who is responsible for the introduction of the disease into the family.

The greatest caution is, therefore, necessary, and, whenever possible, it is safest and wisest in the case of married people to avoid giving a name to the disease, but to treat the case and see that infection is avoided. If a diagnosis is given, it should always rest on bacteriological proof, and the microscopic preparation should be preserved, but, in the case of women, the absolute diagnosis, which would avail in a court of law, is extremely difficult, and the greatest caution is correspondingly indicated. There are many cases in which the infection of an innocent person seems very clear and very wicked, and yet it is well for the physician to keep his opinion to himself, combining the wisdom of the serpent with the harmlessness of the dove.

"Much that may wisely be thought,

cannot safely be said," and even without reference to the danger of legal responsibility it is best to refrain from utterances which, although true, must ruin the peace of married couples when the real responsibility rests on the ignorance of the public as to the gravity of gonorrhœa, an ignorance for which the profession is not wholly blameless.

## DISCUSSION.

DR. ASHTON of Philadelphia: This question is a very important one, and I am glad to hear these modern ideas from Dr. Cushing. In 1880 there were between thirty and fifty thousand prostitutes supporting themselves by prostitution in Paris, and I believe that out of that number, no more than six thousand were under the surveillance of the police. The rest, the most dangerous of all varieties of prostitutes, were clandestine. It is a fact, as shown by the statistics of Paris and of the military of England, that where legislation tries to control prostitution, gonorrhœa and syphilis increase instead of diminish. If interference by statute will increase diseases which are known to be so disastrous to the State by reducing its population, we ought to proceed very cautiously before advising law.

Again, we must in the first place, recognize the fact that the social evil exists, and it is by no means necessary for the community to enact a law recognizing it, for the moment this is done, the moral tone of the

community is lowered. This is shown by the statistics of countries where they have such laws, and which show later marriages. The men cohabit with mistresses, and are not deterred therefrom by public opinion. Only a year or two ago in Paris, a couple pointed out to me in a café the mistress of their son. That is a condition of public morality which seems universal in centres where prostitution is recognized by law.

In my judgment, Dr. Cushing has struck the vital point of the whole question when he says that education, and education alone, will limit the spread of venereal diseases. There is no use of putting the question upon the poetical basis. There is no use of putting it upon the legal basis. It comes down simply to cold selfish interest. The moment an individual realizes the fact that in gonorrhœa we have a disease which may mean disaster for life, that moment we have another individual in the world who is going to fight shy of it. We see people careful about coming in contact with small-pox; careful about coming in contact with various diseases with whose disastrous results the community is conversant; but hardly a man in the community except the medical profession respects gonorrhœa or syphilis. A man sees no connection whatever between a gonorrhœa in early life and an organic disease which carries him to a premature grave at forty-five or even sixty. A man sees no relation between an inflamed urethra and a



sterile wife. Educate the men of the community to understand that gonorrhœa and syphilis are liable to

bring about these things, and we will then see less and less of these diseases and their results.

## THE DEVELOPMENT AND THE PRESENT STATUS OF HYSTERECTOMY FOR FIBRO-MYOMA.\*

CHARLES P. NOBLE, M.D.

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THE first operation deliberately undertaken for the removal of a fibroid tumor of the uterus by abdominal hysterectomy, a correct diagnosis having been made previously, was performed by G. Kimball, M.D. (1), of Lowell, Mass., September 1, 1853. Kimball did a supra-vaginal amputation of the cervix and dropped the pedicle. As was the custom at that time in performing ovariectomy, the ligatures were left long and brought out at the lower angle of the wound. It is a matter of curious interest, as I hope to show in this paper, that Kimball adopted the operation which, as perfected by modern methods, is giving the best results in hysterectomy at the present time.

It is my purpose to give only an outline of the development of hysterectomy in America, as the literature of the subject is too extensive for a full review. The advocacy of surgical operations for the cure of fibroid tumors of the uterus by Dr. Washington L. Atlee, marks the be-

ginning of the scientific treatment of these growths. Atlee operated in general through the vagina, but in a number of cases, beginning in 1844, removed pedunculated fibroids by celiotomy (2), and was the first to perform an abdominal myomectomy for a sessile fibroid tumor of the uterus (3). This operation was performed March 3, 1853. Atlee continued to operate upon fibroid tumors throughout his professional career, and from time to time to contribute to the literature of the subject. He operated in general for the removal of the tumor alone. This was done either *per vaginam* or by abdominal section. He performed hysterectomy, but not in a large number of cases. His final contribution to the subject was a paper entitled "The Treatment of Fibroid Tumors of the Uterus" (4), read before the International Medical Congress in 1876. This is a general paper advocating very much the line of treatment recommended in his "Prize Essay" of 1853, and in addition, hysterectomy in some cases.

The early work of Kimball and

\* Original abstract of paper read before the American Gynecological Society, 1897.

Burnham in abdominal hysterectomy is well known. Dr. Walter Burnham of Lowell, Mass., June 26, 1853, operated upon a patient with a diagnosis of ovarian cyst, but found a fibroid. The patient vomited and extruded the tumor, which could not be replaced; hence, from necessity, Burnham removed it. Two pedunculated fibroids were peeled out to reduce the size of the tumor, then he "passed a strong double ligature through the neck of the uterus and tied on each side. Then, to make doubly sure against hemorrhage, a ligature was placed around the whole neck." The broad ligaments and the cervix were next divided. No bleeding followed. The ovaries were diseased, and were removed. The cervix was dropped, and the ligatures were brought out at the lower angle of the wound. They came away during the fifth week. The patient recovered, being the first to recover after hysterectomy. Burnham continued to operate, performing altogether fifteen hysterectomies, with three recoveries. His second operation was performed in 1854, and the third in 1857. Burnham made no contributions to the literature of hysterectomy, his cases being reported by Drs. Irish (5) and Perkins (6) in 1878 and 1888.

Dr. Kimball was the first to perform hysterectomy deliberately for a fibroid tumor, a correct diagnosis having previously been made. He operated September 1, 1853, upon a patient greatly reduced by long con-

tinued uterine hemorrhages. He performed a supra-vaginal amputation of the uterus. The uterus was transfixed, and each half ligatured. The cervix was dropped, and the ligatures brought out at the lower angle of the wound. Eight months later the woman was well, except that the ligatures were still attached. This case was reported in 1855, and in the report two other cases are mentioned in which hysterectomy was performed with a fatal result. Kimball continued to operate throughout his professional career, and was the first American to make use of Koeberlé's extra-peritoneal method of treating the stump. This operation was performed September 18, 1869 (7). According to Bigelow (8), in 1883, Kimball had performed eleven hysterectomies, with six recoveries and five deaths.

The mortality of hysterectomy was so great in the early years that but few operations were performed. After the introduction of the extra-peritoneal method of treating the stump by Koeberlé, this method was tried by various operators, including Kimball and Thomas (9). Instead of using the *serre-nœud*, Dr. Thomas devised a special clamp to control bleeding from the stump.

Dr. Marcy, probably influenced by the work of Schroeder, improved upon the early work of Kimball and Burnham. He reported a method of securing the pedicle by sewing it across with the cobbler's stitch, in 1881 (10). This method is still used

by himself, and was used by Cushing (11) for some years.

In 1884, Dr. Emmet first utilized the peritoneum from the anterior face of the uterus and the peritoneum of the bladder, to cover over the cervical stump in a hysterectomy done for a benign type of the tumor and a fibroid of the uterus. He was the first to treat the stump by the retro-peritoneal method. The operation is fully described and its principles discussed by him, and the importance of making the stump retro-peritoneal is clearly pointed out (12).

Dr. Joseph Eastman, February 3, 1887, further improved the technique of supra-vaginal amputation of the uterus. Like May, he covered the stump with the omentum, and, like Emmet, he covered the stump with peritoneum. Eastman used an anterior and a posterior flap of peritoneum, which were sutured above the stump thus making the stump retro-peritoneal. Before entering the uterus he ligated out the cervical canal with the thermocautery, and introduced a rubber drainage tube through the cervical canal for vaginal drainage. He was the first to use both anterior and posterior flaps of peritoneum (13).

Until 1888, all progress had been along the lines of perfecting the technique of supra-vaginal amputation. Pan-hysterectomy for cancer fibroid was first performed in America by Dr. Mary A. Jones Jones, February 18, 1888. The operation was deliberately undertaken, as shown by the

fact that some months previously Dr. Jones had in a public discussion, spoken of the advantages which such an operation would have. The greater portion of the mass was removed from above; then the vaginal connections were severed from below, and clamps applied (14). At the time this operation was published it was supposed by Dr. Jones to have been the first pan-hysterectomy for fibroid tumor, as the admirable work of Baerdenhauser was not known in America.

All work in hysterectomy was revolutionized by Dr. L. A. Stimson, who proposed and carried out the ligation of both the ovarian and the uterine arteries in their course as a preliminary to hysterectomy. He first ligated these arteries in performing a pan-hysterectomy for cancer. January 4, 1889, he did the same as a preliminary step in pan-hysterectomy for a fibroid tumor (15). In a subsequent paper, Dr. Stimson advocated the ligation of the ligature of the ovarian and the uterine vessels in their course for the ligature *en masse*. He reported five hysterectomies in which this method was used successfully (16). Dr. Stimson has made no further contribution to hysterectomy, but unquestionably he is the greatest individual contribution to modern technique.

Before the appearance of Stimson's paper, the control of hemorrhage in hysterectomy was very unsystematic. The use of the temporary elastic ligature was considered



an essential step in the operation. The broad ligaments were tied in a series of ligatures patterned on the method of ligation in ovariectomy, the effect being made to ligate every particle of tissue in the broad ligaments; and special stress was not laid upon the systematic ligation of the trunks of the four arteries supplying the uterus and its appendages in their course through the broad ligaments. Great importance had always been placed upon the vascularity of uterine tissue, and the principal danger of hysterectomy was supposed to be that of primary or of secondary hemorrhage from the stump. When Stimson showed that practically all hemorrhage can be controlled by four small ligatures in performing pan-hysterectomy, it was a very slight step to apply the same principle to supra-vaginal amputation, which was suggested by himself, and was done subsequently by Milton of Cairo, and by Beer. Out of Stimson's work has grown our present systematic methods of controlling hemorrhage in hysterectomy. From the date of his paper we can trace the abandonment of the temporary elastic ligature about the tumor and uterus—a direct result of the increased confidence which operators have in their ability to control hemorrhage.

Dr. H. A. Kelly has been an aggressive worker in the field of hysterectomy since the transition period. His first hysterectomies were done by the extra-peritoneal method of treating the stump, but this method was

abandoned because of its disadvantages. On the other hand, Kelly was not willing to run the chances of Schroeder's intra-peritoneal method of treating the stump; accordingly he modified this by attaching the stump, made according to the Schroeder method, in the abdominal wound, so that any hemorrhage or discharge from the stump would make its appearance upon the abdominal wall. In this way, hemorrhage could easily be recognized and controlled, and infection of the peritoneal cavity from the stump avoided. His first operation by this method was done October 10, 1888 (17). The operation is carefully described and illustrated. After the stump was made according to the Schroeder technique, the last row of sutures in the stump was left long, by which to suspend it in the abdominal wound. The parietal peritoneum was then stitched around the stump, and the long sutures caught in a pair of forceps. In this way, within twenty-four hours the surface of the stump became extra-peritoneal, and was under control by means of the long sutures held by forceps. Kelly operated by this method from 1888 until 1893. His experience showed that none of the stumps so treated died, and none of them sloughed, so that in 1893 he adopted practically the Schroeder operation (18). Hysterectomy, as done by Kelly, was a systematic operation, based as to the ligation of the vessels and the various steps of the operation. During this time, however, he continued to use the temporary elastic liga-



ture. Shortly after 1892, the retro-peritoneal method was adopted; and finally his present method of operating was evolved, which will be described later.

Dr. W. M. Polk, influenced by the disadvantages of the extra-peritoneal method of treating the stump, and greatly impressed with the work of Stimson, devised a method of shutting off the stump from the peritoneal cavity without dragging it up into the abdominal wound (19). This operation, while ingenious, like Kelly's first method, is to be regarded as belonging to the transition period, and was one of the methods adopted to avoid the disadvantages of having the stump in the abdominal wound, before a really successful method had been devised for dropping it into the pelvis and covering it with peritoneum. At the same time, following Stimson, Polk began to do total extirpation. Polk's method consisted in dissecting off a cuff of peritoneum all around the tumor or uterus, with systematic ligation of the vessels. This cuff of peritoneum was attached to the parietal peritoneum after the tumor was taken away, so that the stump, while in the pelvis, was shut off from the peritoneal cavity. As a matter of curious interest, the same operation, or one very similar, was reported by Dr. N. Senn (20), as a new and valuable addition to hysterectomy in 1895.

Dr. Henry T. Byford of Chicago, having become dissatisfied with the usual *technique* in dealing with the

stump in hysterectomy, devised a method of turning it into the vagina (21). This ingenious method of operating belongs to the same class as that of Kelly and of Polk, and is of interest historically rather than practically.

Dr. Joseph Eastman's first pan-hysterectomy for a fibroid tumor was performed September 21, 1889, and first reported to the Marion County, Indiana, Medical Society in 1890 (22). Several contributions to the literature of hysterectomy have followed (23). Eastman attaches much importance to peeling out the tumor by means of a dull instrument, and also to keeping close to the uterus so as not to wound the uterine artery. Frequently he does not ligate this vessel. As a further contribution to hysterectomy, Eastman invented a staff with which to lift up the cervix and tumor from below, and to assist the operator in cutting through the vagina from above. Before the introduction of the Trendelenburg posture, this method greatly facilitated the operation. This invention, although original with Eastman, was anticipated by a similar invention by Bardenheuer. Eastman undoubtedly has been one of the pioneers in total hysterectomy, and his experience with the operation has been large.

Dr. J. R. Goffe in 1890 reported four successful supra-vaginal hysteromyomectomies, the first of which was performed May 29, 1888. In these cases the stump was rendered retro-

peritoneal; in the first by sewing the bladder peritoneum over the stump; and in the others by using anterior and posterior flaps of peritoneum, which were sutured above the stump. The operation is described as a new method, the origination of which is credited by Dr. Goffe to Dr. A. P. Dudley and himself (24). Goffe has been a consistent advocate of supra-vaginal amputation, and has subsequently reported fifteen operations, with one death (25). In considering this method, the previous use of the retro-peritoneal treatment of the stump by Emmet in 1884, and by Eastman in 1887, must not be forgotten. Goffe's paper was undoubtedly of service in the development of the *technique* of hysterectomy, and must be regarded as one of the valuable contributions during the period of development.

Until 1892, and during the time when the original work already detailed was undergoing its development, supra-vaginal amputation with the extra-peritoneal treatment of the stump was the method of performing hysterectomy most generally employed. The method was probably first used in America by Kimball in 1869 (7). The popularity of this method was due indirectly to its successful employment by Koeberlé, Péan, Hegar, Keith, Thornton and Bantock; and directly to its advocacy by Joseph Price. Since 1892 it has been used less and less, until at the present time it may be looked upon as obsolescent, if not obsolete. Price

and some of his former students employ the method with the Koeberlé *serre-nœud*, but practically all other operators have abandoned it.

The year 1892 may be considered as a critical one in the history of hysterectomy in America. The good work which had been done began to bear fruit. The general improvement in *technique* in abdominal surgery, and the introduction of the Trendelenburg position into general use, also were important factors. At the meeting of the American Gynecological Society, in 1892 (26), Dr. Polk reported seventeen abdominal pan-hysterectomies for fibroids, with two deaths. His results were not better than had been obtained by other methods, but were sufficient when taken in connection with the work of Stimson, Krug (27), Eastman, Boldt (28), and Edebohls (29), to show the value of pan-hysterectomy.

Baer reported nine cases of hysteromyomectomy without a death, operated upon by supra-vaginal amputation, at the same meeting of the Society (30). The point of chief value in the *technique* employed by Baer is that he securely ligated both the ovarian and the uterine arteries in their course through the broad ligaments. In this he applied the principle worked out by Stimson, except that he substituted the mass ligature for the isolated ligature of the vessels. Baer's paper has had a great influence in popularizing hysterectomy. It was a practical answer to the great fear of primary and secondary hemorrhage

from the cervical stump. He placed no ligatures or sutures in the cervical tissue, and yet no hemorrhage followed. This was a practical and complete demonstration that ligature of the trunks of the uterine arteries can control hemorrhage as well in supra-vaginal amputation as in total hysterectomy. He neither disinfected nor drained the cervical canal, but the good results which he obtained, especially when considered in connection with the more recent studies of the contents of the cervical canal from a bacteriological standpoint, are a very satisfactory answer to the fear of infection from the cervical canal entertained by Schroeder and his disciples.

The chief value of Baer's work consists not in adding new steps to the *technique* of hysterectomy, but in omitting some of them, and also in a thorough appreciation of the fact that a mass ligature placed low down in each broad ligament, securing the uterine arteries, can thoroughly control the blood supply to the cervix. This, of course, is merely applying to supra-vaginal amputation the work of Stimson in total hysterectomy. In addition, Baer was the first to grasp the fact that the way to prevent sloughing of the cervical stump is to leave it alone. He neither burned it with the cautery, devitalized it with strong antiseptics, nor strangulated it with tightly placed sutures. He utilized the work of Emmet, Eastman, Dudley and Goffe, in making the stump retro-peritoneal; and the work

of Stimson in securing hemostasis by ligatures *placed in the connective tissue* of the broad ligaments. The chief fear of the older surgeons in operating upon the uterus was secondary hemorrhage. They believed that uterine tissue has the peculiar property of not being amenable to ligation; that some hours after a ligature is well placed in uterine tissue it will become loose and permit secondary hemorrhage to take place. Through Baer's work this view has become ancient history.

Dr. William R. Pryor, in 1894, contributed a new method of total hysterectomy for intra-ligamentous fibroid tumors, which he had used successfully in three cases at that time (31). In this paper, Pryor calls attention to the three special elements encountered in dealing with intra-ligamentous fibromata, namely:

1. Danger of wounding the ureter.
2. Hemorrhage on dividing the sinuses of the capsule.
3. Duration of the operation.

He proposes a systematic operation to overcome these difficulties. The operation consists of the following steps:

1. The upper part of the broad ligament on the free side is ligated in the usual way, a ligature being placed also to control reflux hemorrhage. The broad ligament is then divided between these ligatures down to a point approaching the uterine artery.
2. The posterior cul-de-sac is now opened to permit the introduction of the finger into the vagina, enabling

the operator to guide the Deschamps needle in placing the next ligature.

3. The bladder is dissected away.

4. The vagina is opened in front of the cervix.

5. The uterine artery is secured between two ligatures in the usual way.

6. The ovarian vessels over the ligamentous nodule are now secured.

7. The vagina is entirely dissected from the cervix, before, behind, and on its free side.

8. The location of the ureter is carefully studied.

9. The uterus is tilted far over to the involved side by an assistant. The Deschamps needle is passed through the vaginal mucous membrane so as to sweep around all the tissues between the vagina and the tumor. Great force may be necessary, as the needle must hug the cervix closely, must pass right up to the tumor, and must finally emerge in the vagina, encircling the uterine artery in one ligature.

10. The cervix is freed from its connections to the vagina and to the base of the broad ligament, the scissors being kept close to the cervical tissue.

11. The tumor is now enucleated, and the remainder of the broad ligament is divided.

12. Iodoform gauze is packed into the vagina, and as high in the pelvis as the cavity in the broad ligament.

13. All raw surfaces can be rendered extra-peritoneal if desired.

For those who do total extirpation,

this operation should prove of the greatest service when dealing with intra-ligamentous fibroid tumors.

The last contribution of value to hysterectomy is that of Dr. Kelly, which he calls "hysterectomy by continuous incision from left to right or from right to left" (32). The method was reported to the Southern Surgical and Gynecological Association, November 12, 1895, with the statement that it had been used over two years and in more than two hundred cases. The method consists in a supra-vaginal amputation of the uterus together with ablation of its appendages, and is to be used for those cases of fibroid tumors requiring hysterectomy, and for cases of destructive lesions of the uterine appendages necessitating the removal of both ovaries and tubes. The operation consists in the following steps:

"1. Opening the abdomen.

"2. Ligation of the ovarian vessels near the pelvic brim, either on the right or on the left side, clamping them toward the uterus and cutting between.

"3. Ligating the round ligament of the same side near the uterus, cutting it free, and connecting the two incisions, in order to open up the top of the broad ligament.

"4. Incision through the vesico-uterine peritoneum from the severed round ligament across to its fellow, freeing the bladder, which is now pushed down with a sponge, so as to expose the supra-vaginal cervix.

"5. Pulling the body of the uterus



to the opposite side to expose the uterine artery low down on the side opened up. The vaginal portion of the cervix is located with thumb and forefinger, and the uterine artery, seen or felt, is tied just where it leaves the uterus. It is not always necessary to tie the veins.

"6. The cervix is now cut completely across just above the vaginal vault, severing the body of the uterus from the cervical stump, which is left below to close the vault.

"7. As the last fibres of the cervix are severed or pulled apart, while the body of the uterus is seen drawn up and rolled out in the opposite direction, the other uterine artery comes into view, and is caught with artery forceps about an inch above the cervical stump.

"8. Rolling the uterine body still farther out, the round ligament is clamped at the pelvic brim, and the removal of the whole mass, consisting of uterus, tubes and ovaries, is completed.

"9. Ligatures are now applied in place of the forceps holding the uterine artery, round ligament, and ovarian vessels; if the surgeon prefers, these may be tied as they are exposed without using the forceps.

"10. After the enucleation the operation is now finished in the usual way, (a) by closing the cervical tissue over the cervical canal, and then, (b) by drawing the peritoneum of the anterior part of the pelvis (vesical peritoneum and anterior layers of broad ligaments) over the entire wound

area, and attaching it to the posterior peritoneum by a continuous catgut suture.

"The continuous transverse incision should always be started on the side where the ovarian vessels and the ovary and tube are accessible. If the case is one of a fibroid uterus, and the tumors are developed under the pelvic peritoneum or in the broad ligament of one side, this side should be opened up last, from below upwards, when the tumors can be rolled up and out with surprising facility."

Kelly claims for this method that it greatly facilitates the operation, increasing the rapidity with which it can be done, and saving from sixty to eighty per cent of the time consumed in the enucleation.\*

The work of Pryor and Kelly has made the removal of intra-ligamentous fibroids almost as simple as those having the usual development, so that in skillful hands the removal of these tumors, until recently considered almost inoperable, is almost as systematic an operation as an ordinary ovariectomy.

In tracing the history of hysterectomy in America there has been no intention to overlook the important work in this field which has been done in other countries. In no other field perhaps can we find a better illustration of the fact that human effort is not restricted by national boundaries,

\* During the last year Kelly has left in one or both ovaries when performing hysterectomy, if these organs were healthy. He states in a private communication to me that enough time has not elapsed for absolute conclusions, but that undoubtedly the vaso-motor disturbances, which greatly annoy many patients when passing through the artificial menopause, are either prevented or greatly lessened by his present practice.

than in that of medicine; a brief reference will be necessary therefore to the work of some of those who have been most prominent in developing hysterectomy in Europe.

Charles Clay of Manchester was the first European to perform hysterectomy for fibroid tumor. In 1843, and in 1844, he operated with a diagnosis of ovarian tumor (33). The first case died in an hour and a half after the operation from hemorrhage; the second, died on the fifteenth day from peritonitis attributed to an accident. The patient was dropped on the floor by the nurse. His first deliberate hysterectomy was in January, 1863. This was followed by recovery.

Koeberlé (34) was the second to perform hysterectomy in Europe, in 1863; and to him also must be credited the discovery of the extra-peritoneal method of treating the pedicle. (Most authors omit reference to Clay, and state that Koeberlé performed the first hysterectomy in Europe.) This method of operating was perfected by Péan (35), Hegar (36) and Kaltenbach, Keith (37), Thornton (38), and Bantock (39). The value of the work of these men cannot be over-estimated, as they were the first to obtain really satisfactory results, reducing the mortality of hysterectomy approximately to that of ovariectomy. It was of value also from the fact that it was done at a time when Atlee, Kimball and Burnham had practically ceased to operate, and when but little work in this field was being done in America.

Too much praise cannot be accorded Schroeder (40). No one surgeon has ever accomplished more for hysterectomy than he, although but about five years were devoted to active work in this field. A careful reading of Schroeder's contributions to hysterectomy in 1883 will show that he had perfected a systematic operation, and there can be no doubt that had he not met with a premature death the credit for perfecting the *technique* of hysterectomy would have been his rather than that of his successors. Even from the present standpoint the method which he worked out was far from bad. His relatively poor results are to be attributed to four causes:

1. Asepsis in abdominal surgery had not been perfected in 1883.

2. Schroeder looked upon an operation for a fibroid tumor as a myomectomy rather than as a hysterectomy. This, together with the supposed necessity for using the temporary elastic ligature, caused him to amputate the uterus at a high level—through the corpus uteri rather than through the cervix. This necessitated the relatively poor ligation of the uterine artery.

3. Schroeder clearly recognized the necessity for ligating the four main vessels which supply the uterus, but his use of the temporary elastic ligature and the cutting away of the tumor at a high level, of necessity caused an unsatisfactory ligation of the uterine artery. Instead of ligating the trunk of the artery in its course through the broad ligament,

it was ligated higher up, after numerous branches had been given off. This error necessitated the placing of numerous ligatures in the uterine stump to control hemorrhage.

4. Finally, although Schroeder covered the stump with peritoneum, he did not appreciate the necessity or value of making the field of operation retro-peritoneal; that is, of covering the wound in the broad ligaments together with the stump proper with peritoneum, and suturing this in such a way that any wound secretions would be retro-peritoneal.

Total hysterectomy is German in origin.\*

Bardenheuer (41) having practiced Freund's operation for cancer applied the same principles to the removal of fibroid tumors, and published his work in 1881. Bardenheuer's work deserves far more credit and recognition than it has received, and will fully repay study at the present time. Not only was he the first to do total hysterectomy for a fibroid tumor, but he operated with his patient in the position which has since been perfected by Trendelenburg, and is now known as the Trendelenburg posture. Another indication of how far Bardenheuer was in advance of his contemporaries is his attitude toward hysterectomy *versus* double ovariectomy. He states that hysterectomy has given better results in his hands than double ovariectomy, and that it appears likely to him that hysterectomy will be sub-

stituted for double ovariectomy because it is a less dangerous procedure.

Drs. Martin (42), Fritsch (43), and Chrobak (44), were among the first to do total hysterectomy, and Martin had done much to popularize the operation by his aggressive attitude toward it.

Chrobak is credited by many German writers with having originated a new *technique* for supra-vaginal amputation in 1891 (45). At the time Chrobak wrote this article upon supra-vaginal amputation, he had performed but one operation, and had assisted Rosthorn in one operation. He disclaims in his paper any originality, and recommends the operation only in those cases in which it is not possible to disinfect the vagina and cervix; in all others cases he advises total extirpation of the uterus. He was still under the influence of Schroeder in so far that he devitalized the stump of the cervix by burning it with the cautery; and also that he retained the use of the temporary elastic ligature in operating. He describes, however, a systematic operation, and fully appreciates the value of the retro-peritoneal treatment of the stump.

In Great Britain, in addition to the older operators who did such good work in the extra-peritoneal treatment of the stump, special mention must be made of Drs. Milton of Cairo (46), and Heywood Smith (47). It is evident from reading Milton's paper that he did a very satisfactory operation, but apparently he failed to grasp the value of his own work, as indi-

\* Apparently Charles Jay's second hysterectomy, performed in 1844, was a complete extirpation of the uterus. The operation was undertaken with a diagnosis of ovarian tumor.



cated by the title of his paper, "Supra-vaginal (abdominal) Hysterectomy with the Scissors." Milton made the stump retro-peritoneal, but failed to appreciate the importance of so doing, and speaks of it as being intra-peritoneal. Also he controlled hemorrhage by ligatures placed in the connective tissue of the broad ligaments, and made mention of the fact that the cervix did not bleed. His experience, however, being limited to three cases, apparently he did not feel like generalizing concerning the control of bleeding.

Smith's paper on sub-peritoneal hysterectomy gives an admirable review of the management of the stump, and points out clearly the advantages of its retro-peritoneal treatment, and also the advantages of the isolated ligature of the vessels. The three cases operated upon by himself, however, were not very satisfactory, as in each case suppuration followed. His methods of ligation were not systematic, and he continued to use the temporary elastic ligature. This paper indicates that a number of British operators were favorably impressed by the principles discussed by Smith, but apparently this work has not borne fruit, as since 1892 the tendency in Great Britain has been toward total hysterectomy.

Prominent among the advocates of total hysterectomy in Great Britain are Drs. Frederick Bowreman Jessett (48) and Christopher Martin (49). Jessett deals with the peritoneal flaps in a manner similar to Polk (26). He

has devised also a sort of bi-valve speculum to assist in cutting through the vagina. It is similar to the "forceps" of Bardenheuer, and to the "staff" of Eastman and of Chrobak. Jessett reports eight operations, with one death.

Martin states that he learned the operation from Smyly. He reports six successful operations for myoma. He operates with the patient flat, failing to take advantage of the Trendelenburg posture, which so greatly simplifies the operation. He ligates the broad ligaments in sections, as was done by Marcy, and later by Zweifel (50); not taking advantage of the fact that all bleeding can be controlled by ligating the trunks of the four arteries. A reading of his description of the operation indicates how much more difficult it is when done with the patient flat, as contrasted with the same operation done in the Trendelenburg posture.

*Technique of Supra-vaginal Amputation for Myo-fibroma of the Uterus.*—Having traced the development of supra-vaginal amputation for fibroid tumors of the uterus, it now remains to describe the operation. The operation is performed under rigid asepsis as regards the patient, the operator and assistants, and the operating room. The Trendelenburg posture greatly facilitates more especially the later steps of the operation when dealing with the broad ligaments and the stump.

The steps of the operation may be summarized as follows:



1. Opening the abdomen through the right rectus muscle, near but not through the *linea alba*. The incision should be long enough to facilitate the delivery of the tumor.

2. Separation of adhesions and delivery of the tumor. If necessary the tumor may be grasped with heavy volsellum forceps, which are much superior to the corkscrew.

3. The intestines are carefully covered with gauze pads, and a sponge is placed in the false pelvis on each side. If the gauze pads are well placed, the intestines do not come into view during the operation.

4. Ligation of the broad ligaments will be described first for a simple tumor, which does not distort the relations of the broad ligaments to the uterus.

(a) Ligation of the upper border of the broad ligament external to the ovary. Catgut or fine silk is used, and the ligature embraces only enough tissue to secure the ovarian vessels.

(b) A second ligature is placed which secures the vessels of the round ligament, and embraces some of the tissues controlled by the first ligature.

(c) A clamp is placed toward the uterine end of the broad ligament to control reflux hemorrhage, and the upper border of the broad ligament down to and including the round ligament is divided between the ligatures and clamp. If more convenient, the upper border of the broad ligament is divided before placing the second ligature.

(d) The peritoneum on the an-

terior face of the broad ligaments and in front of the uterus is divided, the incision connecting one round ligament with the other; and the vesical peritoneum is pushed down with a sponge. Traction is made upon the tumor, which is rolled over to the opposite side; and the broad ligament is pushed away from the tumor or the uterus with a sponge, exposing the uterine vessels.

(e) The vaginal cervix is located between the thumb and finger, and a ligature is placed low down on the cervix to secure the uterine artery external to the point where it turns up along the uterine wall. The ligatures are best placed with a sharp needle and carrier; this has manifest advantages over the ordinary aneurism needle. The ligature which controls the uterine artery should be passed through the external border of the cervix, but should embrace very little tissue in its grasp.

(f) The same steps are then carried out upon the opposite broad ligament.

5. The cervix is amputated below the level of the internal os, and effort being made to slightly cup the stump.

6. The cervix is closed with a few interrupted catgut sutures.

7. Each uterine and each ovarian artery is caught with an artery forceps and is ligated with fine silk, the ligature embracing the artery only.

8. Should oozing points be found (which is unusual), the oozing is controlled by placing fine catgut ligatures.

9. The vesical peritoneum and

that from the front of the broad ligaments is stitched over the open broad ligaments and stump with a continuous Lembert catgut suture. This suture begins and ends below the plane of the round ligaments, so that the upper borders of the broad ligaments are not buried under the peritoneal flap. The suture is introduced so as to draw the peritoneal flap snugly over the stump, in this way avoiding the formation of a dead space, with a loose peritoneal covering.

10. The pelvis is washed out with normal salt solution. It is well also to wash the stump of the cervix with the salt solution before covering it with the peritoneal flap.

11. After removing the gauze and sponges, the abdominal wound is closed.

If the tumor is anomalous in its development and opens up one or both broad ligaments, the *technique* of the operation must be varied to suit the case. In such a case the method of Kelly, or that of Pryor, can be adopted. In several cases the following method has given satisfaction:

The ligation is made in the usual way on the easy side. Then the ovarian vessels upon the involved side are secured. The relations of the upper border of the broad ligament may be entirely distorted by the intra-ligamentous development of the tumor, but the vessels can be found and ligated without difficulty. When spread out over the tumor, they are best picked up (especially the veins)

by passing a blunt aneurism needle under them. The round ligament may be widely separated from the ovarian vessels. A separate ligature is placed to secure the vessels of the round ligament. Clamps are placed to control the reflux hemorrhage. The round ligament is then cut through, and the peritoneum in front of the tumor is incised, and the incision is carried across the front of the uterus to the opposite side. The bladder is then pushed down, and the peritoneum is pushed off the anterior face of the tumor. Careful search is made for the ureter, as in such cases it may run over the anterior face of the tumor, although I have never found it in this location. The ovarian vessels are next divided, and the peritoneum is incised on the posterior face of the tumor. The tumor is then enucleated by making traction upon it with the hand or with volsellum forceps, and by pushing the peritoneum and connective tissue off from the tumor with a sponge. At this stage all vessels have been secured except the uterine artery upon one side, and if the tumor is peeled out of its bed by pushing the connective tissue away with a sponge, no hemorrhage results. After enucleation and delivery of the tumor, the uterine vessels upon the involved side can be ligated in the usual way.

When both broad ligaments are distorted by intra-ligamentous development of the tumor or tumors, I have in some cases placed temporary ligatures internal to the ovaries upon both sides to control hemorrhage

from the ovarian arteries. By placing clamps near the horns of the uterus to control reflux hemorrhage, the upper border of the broad ligaments can be cut through, and the tumors enucleated by traction and pressure with a sponge as already described. After delivery of the tumors, ligation of the uterine vessels is simple. The cervix is then amputated and closed. Permanent ligatures are placed external to the ovaries and the appendages are removed. Finally, the peritoneal flap is sutured in the usual manner. This method is especially valuable when the tumor is impacted in the pelvis and the appendages are densely adherent beneath the tumor. When using Kelly's method I have usually made the first step of the operation the ligation of the ovarian artery upon the "involved side"; otherwise following the directions laid down by Kelly.

A few steps in the operation are of sufficient importance to be worthy of recapitulation. Fine silk or catgut should be employed for mass ligatures, and a relatively small amount of tissue should be included in each ligature. The four main arteries should each have a separate ligature of fine silk placed upon it in addition to the mass ligature. By following this rule I have never had either a primary or a secondary hemorrhage after hysterectomy. The value of a sponge, held in a sponge holder, to push off the broad ligaments from the uterus or from the tumor cannot be overestimated. This point in *tech-*

*nique* I learned from Dr. Kelly. It greatly facilitates and renders practically bloodless the enucleation of tumors. After the upper portion of the broad ligament is divided, including the round ligament, the remainder of the broad ligament contains only connective tissue, which is easily pushed away from the tumor or the uterus. No cutting instrument is needed for this purpose. I prefer to close the cervical stump with a few catgut sutures, to guard against possible secondary infection from the vagina. In all cases when practicable the uterus is curetted and the uterine cavity washed out as a preparatory step to the hysterectomy. By using catgut in the cervix and for mass ligatures, the silk ligatures near the cervix are reduced to two fine individual ligatures. This method reduces the risk of infection of the pedicle ligatures to a minimum and practically to zero.

*The Present Status of Supravaginal Amputation for Myo-fibromata of the Uterus.*—In order to determine the mortality of supravaginal amputation for myo-fibroma of the uterus, I have secured the statistics of Drs. Kelly, Baldy, Penrose and Boldt, for the past three years; and my own statistics since I began to perform the operation in 1891. It is believed that the results of a few well known gynecologists, for a definite length of time, will give a more correct approximation of the present mortality of the operation, than a collection of cases from a larger number, extending over varying periods.

## COMPARISON OF RESULTS IN SUPRA-VAGINAL AMPUTATION AND IN TOTAL EXTIRPATION OF THE UTERUS.

(R. Olshausen, M.D. Veit's Handbuch der Gynäkologie, 1897, p. 713.)

*Supra-vaginal Amputation.*

Operator.	No. Cases.	Deaths.
Zweifel .....	122	5
Trenb .....	100	7
Olshausen, 1892-96.....	100	6
Chrobak .....	42	2
Rosthorn .....	30	1
Runge .....	27	1
Baer .....	34	2
Brennecke .....	26	0
Johannovsky .....	23	4
Mann .....	15	1
Léonte, 1887-94.....	26	0
Goffe, 1888-95.....	15	1
Johnson .....	17	1
Lanwers .....	26	1
Delétréz, 1890 until August, 1895 .....	50	5
Térillon, until 1892.....	36	3
Leopold .....	21	0
Tauffer's Clinic .....	45	4
Küstner .....	50	1
Total .....	806	45
		5.6 per cent.

*Total Extirpation.*

Operator.	No. Cases.	Deaths.
A. Martin .....	90	6
Lenmander .....	16	1
Polk .....	16	2
Chrobak .....	20	0
Schanta .....	61	5
Boldt .....	19	6
Küstner .....	20	3
Eastmann .....	79	8
Hall .....	10	1
Doyen .....	28	4
Delagénère .....	20	1
Jacob .....	15	6
Snegireff .....	23	0
Carle .....	54	1
Krug .....	17	2
Le Bec .....	19	3
Smyly .....	11	1
Total .....	520	50
		9.6 per cent.

## SUPRA-VAGINAL AMPUTATIONS FOR MYO-FIBROMATA OF THE UTERUS FOR THE YEARS 1894, 1895, 1896.

Operator.	Cases.	Deaths.
Dr. Howard A. Kelly.....	155	7
Dr. John M. Baldy.....	56	2
Dr. Charles B. Penrose....	57	4*
Dr. Herman J. Boldt.....	11	0
Dr. Charles P. Noble,* May 28, 1891, to April 5, 1897	66	4
Total .....	345	17
		4.9 per cent.

\*Ten hysteromyomectomies were performed prior to 1894, and six hysteromyomectomies in 1897. Of the sixty-six hysterectomies, the first three were treated by the extra-peritoneal method; in two, the Kocher's serro-nœud was used, and in one the rubber ligature. In two cases abdominal pan-hysterectomy was performed; and in one combined vaginal and abdominal pan-hysterectomy.

## TOTAL HYSTERECTOMY FOR MYO-FIBROMATA OF THE UTERUS.

Operator.	Cases.	Deaths.
Dr. Wm. M. Polk,* 1894, '95, '96 .....	24	1
Dr. Herman J. Boldt, 1894, '95, '96 .....	28	1
Dr. Herman J. Boldt, 1893, '97 .....	27	1
Dr. Herman J. Boldt, prior to 1893 .....	21	7

\* It was intended to have a similar number of cases to report, operated upon by prominent advocates of total hysterectomy for fibroid tumors. Drs. Polk and Boldt kindly sent their statistics, but the other gentlemen who were asked failed to respond. The statistics of Drs. Polk and Boldt not being sufficient to make a fair comparison, Olshausen's table, which is the latest published, is presented.—D.

Dr. Polk has furnished his results in vaginal hysterectomy for fibroid tumors. He has had twenty-one vaginal hysterectomies, with one death.

Dr. Boldt performed eleven supra-vaginal amputations of the uterus for fibro-myomata in 1896 and 1897. He writes that he looks upon this operation "with more favor than formerly, and may do it more and more."



*Comparison of Supra-vaginal Amputation with Total Extirpation.*—

A comparison of the tables presented indicates that the mortality of supra-vaginal amputation is a little more than one-half that of total extirpation for fibro-miomata of the uterus. This I believe represents the relative risks of the two operations. My personal experience with total extirpation has impressed me with the much greater technical difficulties of this operation as compared with supra-vaginal amputation. The disadvantages of total extirpation as compared with supra-vaginal amputation are as follows:

1. The operation requires a longer time, probably fifteen minutes longer.

2. Hemostasis is not so satisfactory, because in addition to the ovarian and uterine arteries, branches from vaginal and middle hemorrhoidal arteries must be dealt with.

3. The vagina is opened, and although this may be cleansed previously, it cannot be done perfectly, and the risks of infection from soiling the fingers or instruments and secondarily the peritoneum are increased.

4. Even if the operation is carefully done, and the peritoneal cavity is shut off by a continuous symperitoneal suture, it is still necessary to employ drainage of the subperitoneal space—that is, the bases of the broad ligament and the cut vaginal walls. This entails a granulating wound, infected ligatures and the possibility of septic absorption.

The single advantage which total extirpation has over supra-vaginal am-

putation is that in certain cases the cervix is diseased, and in such cases it is best to remove it.

Those who favor total extirpation allege also that if the cervix is not removed, at times it becomes the seat of cancer. It is alleged by the opponents of supra-vaginal amputation that if not removed the cervix will slough, that suppuration will occur under the peritoneal flap, and that the ligatures in the cervix and about the uterine arteries will become infected and give rise to subsequent trouble. My experience is the reverse of this. The more recent bacteriological studies have shown that Schroeder and his disciples entertained an undue fear of infection from the uterine and cervical canal, and practical experience has shown this fear not to be well founded. Sloughing and infection occur from faulty ligation and from the operator's fingers.

A practical point bearing upon the relative merits of supra-vaginal amputation *versus* total hysterectomy is the fact that a number of the advocates, in America, of total hysterectomy have adopted vaginal hysterectomy for small tumors. This is not true of those who perform supra-vaginal amputation. Were advocates of total hysterectomy satisfied with their results, they would not adopt an inferior procedure. This tendency it seems to me, is to be explained by the relative crudeness of the *technique* of total hysterectomy. Those who perform this operation are accus-

tomed to the idea of having the ligatures about the uterine arteries and those about the cut vaginal walls, become infected and come away by necrosis and suppuration. They are accustomed to the idea of a granulating infected wound, and to drainage of the supra-vaginal space. Those who employ the less perfected *technique*, and who omit the suturing of the peritoneum to shut off the peritoneal cavity from the wound, employ drainage of the healthy peritoneum. Habituated as they are to an infected granulating wound with more or less necrosis, and to gauze drainage and more or less foul vaginal discharges, they can contemplate vaginal hysterectomy without repugnance. It becomes a question with them as to whether they prefer to operate from above or from below. On the other hand, because of the perfection of its *technique*, those who perform supra-vaginal amputation have to deal only with the healing process after the operation is completed. Inflammation, infection of ligatures, necrosis, drainage and foul discharges, have been eliminated.

Since it has been demonstrated that drainage is necessary only in the rarest instances in pelvic surgery, supra-vaginal amputation meets every indication. The necessity for drainage is obviated by the careful ligation of bleeding points and thorough aseptic work. When the peritoneum is unavoidably soiled, the pelvis should be carefully washed with normal salt solution to wash away or to dilute as

much as possible the infectious material. After the cleansing has been thoroughly done, the peritoneal cavity is filled with normal salt solution so as to further dilute the infectious material and to scatter any germs which may remain. In this way a given portion of peritoneum has to deal with a minimum number of germs.

*Vaginal Hysterectomy for Fibromyomata.*—The scope of this paper will not permit a careful inquiry into the relative status of supra-vaginal amputation of the uterus and vaginal hysterectomy for fibroid tumors. Leaving aside any question as to the relative mortality of the two operations, which probably is a question of the operator rather than of the operation, my objection to vaginal hysterectomy for fibroid tumors is fundamental. Vaginal hysterectomy violates several principles which in my judgment should be the foundation of modern gynecological surgery. 1. It violates the principles of true conservatism. Myomectomy and not hysterectomy is the ideal operation for fibroid tumors. Myomectomy by the vaginal route is not practicable except for small fibroids; and even when the tumors are small, unless the tumor is submucous or springs from the uterus low down, the operation is best done from above. 2. Vaginal hysterectomy by the clamp method and even by the ligature method entails the deliberate induction of the process of sloughing, which is repugnant to all refinement in surgical

*technique.* 3. When clamps are used it is necessary to employ drainage even in the healthy peritoneal cavity, in order to shut off the general peritoneal cavity with gauze from the sloughing field of operation.

*Removal of the Ovaries for Fibroid Tumors.*—The removal of the ovaries for fibroid tumors, as a substitute for hysterectomy, no longer offers any advantages except in rare instances. As a general statement the mortality of the two operations is about the same. When it is considered that when hysterectomy is performed, if the patient recovers, the disease is definitely cured; whereas, if the ovaries are removed, the convalescence is necessarily a slow one, and that in a definite percentage of cases the tumors continue to grow or to bleed, there can be no question as to which operation is preferable. I would remove the ovaries for fibroids only in the case of small tumors with persistent hemorrhages, palliative measures having failed. If driven to operate under these circumstances, and the patient seemed too feeble to stand anesthesia for the length of time necessary to perform hysterectomy, I would remove the ovaries.

*Early Operation for Fibroid Tumors.*—The foregoing table indicates that the mortality of supra-vaginal amputation of the uterus for fibroid tumors, under the conditions which exist at present, is five per cent. Unquestionably this mortality rate is greater than it otherwise would be were it not for the fact that both sur-

geons and practitioners are influenced still by the traditional teaching that fibroid tumors should be removed only when they directly threaten life or produce such symptoms as to render existence insupportable. The tendency has been to postpone operation until the patient is greatly reduced by repeated hemorrhages and is suffering from chronic anemia. In other cases, in which diseases of the uterine appendages exists as a complication, the women are advised to submit to operation only after repeated attacks of peritonitis. These attacks have not only broken their general health, but also have rendered operation more difficult and dangerous through the formation of dense adhesions. Pressure symptoms compel others to submit to operation. The tumors may press upon the bladder, ureters, or bowels. In immense tumors the mere bulk of the growth may embarrass the abdominal and thoracic organs. Other cases are complicated by the occurrence of calcareous, necrotic and sarcomatous degeneration. In other words, the policy of delay which has been followed almost universally in the past has had the result, that a large percentage of the patients submitting to operation for fibroid tumors, have been in bad general condition. One hazards little in making the statement, that the risk of removing an uncomplicated fibroid tumor from a woman in good general condition, by supra-vaginal amputation of the uterus, is not more than one or two per cent; and this percentage is an allowance for the possible oc-

currence of accidents which are common to all surgical operations.

As bearing upon the question of early *versus* late operation for fibroids, the following analysis of my own cases\* of hysterectomy is presented, showing the various degenerations and complications which were encountered.

Cystic degeneration.....	3
Sarcomatous degeneration.....	3
Calcareous degeneration.....	3
Necrosis of the tumor.....	2
Bi-lateral hydro-salpinx.....	4
Unilateral hydro-salpinx.....	4
Bi-lateral pyo-salpinx.....	4
Unilateral pyo-salpinx.....	2
Unilateral ovarian cyst.....	4
Bi-lateral dermoid ovarian cyst...	1
Par-ovarian cyst.....	1
Ovarian cyst, ruptured tubal pregnancy, appendicitis.....	1
Intra-ligamentous development of the tumor.....	6

A review of this table indicates that twenty of these women would have died as a result of degeneration in the tumor itself, or of the complicating disease of the tubes and ovaries. It is difficult to estimate the number that would have died directly or indirectly from hemorrhage; from chronic anemia, the result of hemorrhage, and from intercurrent diseases, the result of malnutrition. It is a safe statement that from twenty to twenty-five of these women would have died as a result of their disease—that is !

from thirty to thirty-eight per cent. Thirteen women, or twenty per cent, had passed the usual period of the menopause, when according to traditional theory they should have been relieved of their symptoms or their tumors should have atrophied.

Seven cases of malignant disease, some of which were not operated upon have been observed. This indicates that malignant disease may be a more frequent complication of fibroid tumors than is usually believed. Seven cases of necrosis occurred among the operative cases, and many others have come under my observation.

Young women who are not operated upon must run the risk of pregnancy and labor complicated by a fibroid tumor.

A study of my cases of hysterectomy indicates that from thirty to thirty-eight per cent of the women would have died as a result of their disease without operation. This is to be contrasted with a mortality of six per cent which followed the operation. A study of the four fatal cases shows that in three of them the fatal termination is fairly attributable to the policy of delay.

The evidence which has been presented is clearly not in accord with the traditional theories and practice concerning fibroid tumors of the uterus. It seems to me that the time has arrived when fibroid tumors should be considered from the modern instead of the ancient standpoint. The theory of the natural cure of fibroid tumors by the menopause should be

\* In one the diagnosis was not absolute. The tumor was necrotic, and the diagnosis of the pathologist was sarcoma or necrotic fibroid. The patient died within the year with symptoms suggestive of sarcoma of the liver.



sharply revised. It is true that in a certain number of cases the tumors become smaller after the menopause, and it is possible that in some cases they have disappeared. On the other hand, the menopause is not established at the age of forty-five, and frequently not until the age of fifty-five. In a large percentage of cases the tumors continue to grow, undergo degenerative changes, and produce such suffering after the menopause that operation is necessary. In other words, a practitioner is not warranted in promising a woman having a fibroid that if she will submit to the sufferings due to the tumor until the menopause is established, she may expect to be free from them thereafter.

The facts which have been presented inevitably force the conclusion that the proper line of practice in the treatment of fibroid tumors is to operate early while the tumors are small and before the health of the patient has been broken down. This is the truest conservatism. 1. It conserves the life of the patient by ensuring a low death rate after operation. 2. It conserves the integrity of the organs of generation by making it possible to perform myomectomy in a large percentage of cases. It offers years of usefulness and good health, as contrasted with years of invalidism or semi-invalidism. The so-called conservatism of the past conserves only the continued growth of the tumor and the continued ill health of the patient; two objects in favor of which it is difficult to adduce arguments.

The time has now arrived when the more rational practice may be advocated upon the grounds of genuine conservatism.

*Myomectomy.*—Myomectomy is the ideal operation for fibroid tumors of the uterus. It not only cures the patient of her disease, but restores her sexual organs to functional integrity. The next advance in the treatment of fibroid tumors will be the early resort to operation, with the distinct purpose of substituting myomectomy for hysterectomy in a large percentage of cases. Myomectomy, of course, is only indicated in women of child-bearing age. My own experience with myomectomy embraces twenty-two cases, as compared with sixty-six abdominal hysterectomies and one vaginal hysterectomy. Five of these cases were operated on by the abdominal route, and seventeen by the vaginal route. All of them not only recovered from the operation, but were restored to health. Of the cases operated upon *per vaginam*, in six the cervix and, if necessary, the uterus was split, in order to reach the tumor. I have split the uterus bi-laterally far above the internal os, in order to secure the room necessary to enucleate sub-mucous or interstitial fibroids situated near the fundus. In such cases, if necessary, the uterine arteries may be tied; but this is seldom required. The incision in the uterus should be sutured with catgut. Of the twenty-two cases, as yet none have returned with a tumor developing from fibroid nodules left behind.

## CONCLUSIONS.

Surgery is indebted to America for ovariectomy and for hysterectomy for fibroids. Ovariectomy was originated by McDowell in 1809; and hysterectomy must be considered as an outgrowth from it, the first fibroid tumors having been operated upon with a diagnosis of ovarian tumor. The first hysterectomy for a fibroid tumor deliberately undertaken was performed by Kimball, in 1853.

The type of hysterectomy in America has been supra-vaginal amputation. This method was adopted by Kimball and by Burnham in 1853. Many surgeons of all countries have worked in this field, notably Schroeder; but in the evolution of the operation the steps in the *technique* which have rendered it simple and safe have been originated by other American surgeons. These steps are notably:

1. The retro-peritoneal treatment of the stump—Emmet, 1884; Eastman, 1887; Dudley and Goffe, 1890.

2. The ligation of the trunks of the ovarian and the uterine arteries in their course through the broad ligaments—Stimson, 1889; Baer, 1892.

3. Amputation through the cervix well below the internal os; and the omission of constricting ligatures in the tissues of the cervix—Baer, 1892. The substitution of a few catgut sutures to close the cervix and prevent secondary infection from the vagina through the cervical canal.

4. The origination of a systematic *technique* for the removal of intra-

ligamentous fibroid tumors—Pryor, 1894; Kelly, 1896.

The mortality of fibroid tumors is greater than it is usually stated. It much exceeds the mortality of operation for the cure of the disease.

The mortality of supra-vaginal amputation for fibroid tumors of the uterus at the present time is about five per cent.

The mortality of total hysterectomy for fibroid tumors of the uterus at the present time is about nine per cent.

The mortality of hysterectomy is greatly increased by the traditional policy of delay in advising operation for fibroid tumors, which still influences both practitioners and surgeons.

Early operation for fibroid tumors should be urged upon the basis of genuine conservatism as contrasted with spurious conservatism. Early operation ensures a low mortality. It permits the substitution of myomectomy for hysterectomy in women of child-bearing age, in a larger percentage of cases than is possible with tumors of large size. It conserves the life and the health of the patient; and when myomectomy can be performed, restores her sexual organs to functional integrity.

The policy of delay, or spurious conservatism, conserves only the continued growth of the tumor. It entails upon patients years of invalidism or semi-invalidism, and subjects them to much greater risks than those of early operation. Finally, many of those who have suffered for years in

the hope of relief without operation are obliged to submit to hysterectomy when their chances for recovery are much less than had the operation been done early.

Myomectomy is the ideal operation for fibroid tumors. The next advance in the treatment of fibroid tumors will be the acceptance of early operation, with the definite purpose of substituting myomectomy for hysterectomy in women of child-bearing age, in cases having only a small number of fibroid nodules.

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## ON THE INDICATIONS FOR AND METHOD OF WASHING OUT THE PUERPERAL UTERUS.\*

JAMES W. MILLS, M.D.

*Secretary and Attending Physician to the Palmer Memorial Hospital.*

To many of you this subject is well known, but my reasons for occupying your time with it are these: 1. Because the subject receives but scant attention in our text-books. 2. Because men seem to have a timidity in dealing with the puerperal organ, and 3. Because there is no point upon which the consultant's opinion is more frequently sought.

That many lives have been sacrificed from want of due attention to the antiseptic washing out of the

*post partum* and *post abortum* uterus, there can be no doubt, and there is little question that ignorance of the proper indications for and method of washing out have been accompanied by serious, even fatal results.

Every woman, who after a labor or miscarriage, has an elevation of the pulse or high temperature, should at once have an antiseptic douche. Should the temperature and pulse not fall to normal or thereabouts after several such douches, repeated at intervals of half a dozen hours, the irrigator should be carried to the

\* Read before the Wisconsin State Medical Society, May 7, 1897.

fundus of the uterus and a similar injection made into the cavity of the womb. If after repeating this treatment several times in the twenty-four hours, the patient's symptoms have not subsided or become markedly better, the physician is committing an inexcusable blunder if he does not thoroughly curette the whole cavity of the womb, irrigate it, and render it as aseptic as possible.

Let me try to formulate the circumstances under which antiseptic washing out of the uterine cavity is indicated.

First, Where, with localized tenderness over the uterus there is a high pulse and temperature, and a fœtid discharge. It is to be observed that the fœtid discharge must be from the uterus. In order to decide this question, it is essential to wash out the vagina with an inodorous antiseptic wash, such as boric acid or corrosive sublimate, the latter not stronger than 1-4000, and then putting the finger up and into the cervix to decide whether it is fœtid or not. All first washings should be under chloroform; therefore, I always explore the cavity of the uterus with the finger.

Second. Where, with a high pulse and temperature, there is any question as to the absolute complete delivery of the placenta; and in this connection it is impossible to emphasize too strongly the importance of examining closely the placenta after delivery, whether it be expressed, extracted, or delivered spontaneously.

Such care will often eliminate at once any possible cause for infection.

Third. Where portions of the membrane have been retained *in utero*, and cause increase in pulse and temperature. Here, however, let me say that it is possible to do harm in endeavoring to remove the membrane completely at the time of delivery. It is much better to leave a portion of membrane than to open up the genital tract in search of a small piece.

Fourth. After the birth of the putrid fœtus.

Fifth. Where the uterus remains abnormally large after labor, and where, as a result, owing to the presence of decomposing clots, symptoms of septic infection develop.

Sixth. In all cases where late on in the puerperium, symptoms of septicemia develop.

Seventh. In those somewhat rare yet well recognized cases where, from acute flexion of the uterus, the lochia are retained and decompose.

Eighth. In some imperfect cases of abortion and premature labor, and in all cases where the uterus, under such circumstances, has been curetted.

Ninth. In all cases where the hand has been introduced, say in cases of *post partum* hemorrhage, adherent placenta, washing out of the uterus with hot antiseptic water is the recognized treatment.

#### RATIONALE.

What is the rationale of washing out of the puerperal uterus in septic-

mia? It seems at first sight open to doubt how far washing out of the uterine cavity can prove effective in checking septicemia, if rapidly multiplying microbes have already passed into the system.

In some cases the toxic material does not multiply in the blood, but is generated in the uterus alone, from which it is served out into the system and eliminated by the excreting organs. The relation might be illustrated by the gas supply of the city, in which the gas is, of course, produced at the retorts at the central works, and is simply served through the pipes and eliminated at the burners. By washing out the uterus we put out the retorts and stop further production, the elimination of the poison being only a question of time. Now, let me here say, that the value of washing out the uterus is confined to the uterine cavity. Where the development of toxic material has gone beyond this, or where the septicemia is developed originally outside of the uterus altogether, obviously washing out of the uterus will be of no avail.

#### METHOD.

As far as my experience goes, a good deal of misunderstanding exists as to the proper method of carrying out this operation. The following points seem to me worthy of attention:

First. The patient ought to be so placed that her shoulders are raised while the pelvis is depressed. This is just the converse of what is re-

quired in gynecological douching—the object being to prevent any quantity of the secretions remaining in *utero* by giving it free escape. Two methods of accomplishing this can be adopted—either by placing the patient on her back in bed with a douche pan placed beneath her buttocks, or else she can be placed transversely across the bed with her hips depending across its edge. The latter seems to me the more correct and satisfactory.

Second. Care should be taken that the os uteri is open, so as to allow a free escape of fluid. Frequently, however, it is closed, and when such is the case, recourse must be had to the grooved glass tubes, or to the double channeled catheter. The glass tubes are the more generally applicable, for one amongst other reasons, being that the sublimate solution corrodes the metal instrument, and the eyes of the catheter easily become blocked.

Third. The continuous douching is preferable to the ordinary syringe, but inasmuch as the douche is not always at hand, the syringe will be the most usually available.

Fourth. The tube should be carried right up to the fundus uteri, and if the syringe be employed, it ought to be used slowly, steadily, and without jerking. Always remember not to allow the water to flow into the uterus too forcibly, as there is danger of forcing it into the Fallopian tubes.

Fifth. The fluid ought to be in-



jected at a temperature of about  $115^{\circ}$  and continued until quite clear and pure, or at most mixed with a little blood. Special attention ought to be paid to having the temperature high so as to induce uterine contraction, and that for two reasons: (1) Because the uterus in these cases is usually atonic; and (2) especially in those cases where corrosive sublimate is employed, so as to insure that none of the salt remains in the uterus to act as poison, though followed by a stream of warm sterile water. There are, however, two conditions in which it is of the utmost importance to be careful in the use of corrosive sublimate, and these are profound anemia and where there is kidney disease. In both cases carbolic acid, lysol or boric acid will be a more suitable and safer antiseptic.

Sixth. A point of essential importance is that the fundus uteri should be grasped by the hand of an assistant in such a manner that the thumb and middle finger compress the Fallopian tube, so that at one and the same time the fluid may be squeezed into the uterus, brought intimately

in contact with the whole uterine cavity and prevented from passing above the Fallopian tubes.

Seventh. I would strongly urge that the patient be placed under chloroform for at least the first washing out. I am confident that many cases suffer from want of this precaution; because owing to the tenderness of the parts, it is impossible to manipulate the uterus and instrument properly. And besides, it gives the operator the opportunity of exploring, if need be, and I may add it is usually best to do so.

#### MEDICAL TREATMENT.

Increase diuresis by milk diet and exciting the skin to increased action by friction. Give calomel and salines internally to act directly upon the germs and their products in the bowels, and give stimulants freely. With careful attention to the puerperal cases and following out a proper course of treatment, I am fully convinced many mothers' lives would be saved.

Janesville, Wisconsin.

## RAPID DILATATION OF THE UTERUS A CONSERVATIVE OPERATION.\*

R. M. HARBIN, M.D.

My attention was recently called to an article in the *British Medical Journal* condemning rapid dilatation of the uterus as not being a conservative operation. So far as my observation goes, the dangers are very slight where proper precautions have been taken. Divulsion of the uterus offers more relief in selected cases than the more complicated and dangerous operations, and should be done before advising the latter. The main indications for the operation are narrowness of the cervix and os of uterus, flexions with dysmenorrhœa, sterility and the reflex symptoms arising from the same.

Personal observation makes me believe that many cases of obstinate vomiting of pregnancy can be relieved by rapid dilatation shortly before an expected conception, as we often have to perform abortion in cases that conceive very soon afterwards, rendering the operation necessary again.

The cause of dysmenorrhœa and sterility in a majority of cases is mechanical, and dilatation is usually followed by a relief of the symptoms if not a cure of sterility. The contra-

indications are pyosalpinx and acute peritonitis. In an aggravated case of chronic pelvic peritonitis rapid dilatation can be done with safety after a few weeks of general and local treatment.

The operation should be done about a week before menstruation and the *technique* is simple, the patient having been prepared by giving a saline purge the day previous and a 1-4000 bichloride vaginal douche the day of the operation. The dorsal position and the bivalve speculum are preferable. An anæsthetic is necessary only in exceptional cases, and most women prefer some pain to the unpleasantness of an anæsthetic.

A set of graduated uterine sounds is necessary to determine the direction and point of stenosis of the uterine canal. The canal should be straightened and gradually dilated so as to admit the dilator, and this part of the operation requires more tact and patience than any part of the procedure. The cervix being drawn down and steadied by volsella forceps, the dilator is introduced and dilatation made of about an inch in opposite directions. The lighter forms of dilators are preferable for this operation. Rest in the recumbent position,

\* Read at the Georgia State Medical Association, April 26, 1897.

and carbolized douches for a few days complete the treatment. If there has been much pelvic inflammation, absolute rest in bed four or five days is required. I will mention an illustrative case:

Mrs. Blank, a small woman 23 years old, married one and a half years, has had dysmenorrhœa ever since she was seventeen years old, when menstruation first began. Two years before I saw her she had appendicitis, and since then has had chronic pelvic peritonitis, which was aggravated at each menstrual period. She had almost constant pelvic pain and difficulty in walking. During the last few menstruations she has had hysterical convulsions and coma, which would last four or five days. I was asked to see her with the attending physician, and found a narrow vagina with the uterus flexed retrolaterally and prolapsed with posterior adhesions, making it immovable. The ovaries were prolapsed and inflamed, with adhesions. The smallest uterine sound could not be introduced. Two

skillful physicians and one gynecologist advised ovariectomy and anterior fixation of the uterus in view of the great disturbance arising from dysmenorrhœa and the remote effects of the convulsions on the mind.

A more conservative course was pursued and the patient was given local treatment of iodine and iethyol for three weeks and then the uterus was subjected to rapid dilatation. Great difficulty was experienced in introducing the dilator, but I finally succeeded without the use of an anæsthetic.

After the operation she menstruated with comparative comfort and in three months conceived, and is now eight months pregnant and her health has been excellent. After she is delivered, I believe she has a better prospect for health than to have submitted to a radical operation. We take a great responsibility on ourselves to advise the removal of the ovaries in young married women and destroy the prospects of maternity.

206 Broad St., Rome, Georgia.

#### AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

THE American Association of Obstetricians and Gynecologists will hold its tenth annual meeting at the Cataract House, Niagara Falls, Tuesday, Wednesday, Thursday and Friday, August 17, 18, 19 and 20, 1897, under the presidency of Dr. James F. W. Ross of Toronto. The railways have granted reduced fares on the cer-

tificate plan to all who attend the meeting; the Cataract House has made a reduction from its regular tariff of charges; the place of meeting is a famous one; the season of the year auspicious, and everything seems to conspire to justify a prediction that this will be a large and interesting meeting of this famous association.

## EDITORIAL.

### CYSTS OF THE BROAD LIGAMENT.

RAIMONDI, in a very complete study on cysts of the broad ligament gives the following definition: "A cyst situated in the neighborhood of the ovary in the organ called the broad ligament. These cysts are either formed from the broad ligament or from the fetal organs contained therein." In this definition true cysts of the ovary contained in the broad ligament are eliminated.

The large majority of these cysts develop from the remains of Rosenmuller's organ, whether they take their origin in the canalicules of this organ or in Kobelt's canal, which is only the most external portion of the parovarium. They occasionally arise from the hydatid of Morgani, in which case they are of small size. Quite frequently they are formed in the connective tissue interposed between the folds of the broad ligament, more rarely in the genital portion of the Wolfian body from Gaertner's canal. Sub-serous hygroma may be also included in this class of cysts.

There are three types of intra-ligamentous cysts. In the first class are to be placed the parovarian cysts having only one cavity filled with a transparent fluid. They have a lamelliform pedicle and are lined by

either a cylindrical or cubic epithelium. The second class comprises those cysts with smooth walls included in the broad ligament. Their walls are composed of strips of connective tissue with a few elastic fibres. Their epithelial lining is of the cylindro-cubic type, but what distinguishes these liquid collections from those of the parovarium is the aspect of the contents, which are not so transparent, as well as their situation, which is distinctly in the broad ligament. Papillomatous cysts make up the third class. Their internal surface is verrucose and numerous papillæ are to be seen in their walls. The epithelial lining is made up of flat and thin cells, which become cubic in certain spots, or even cylindrical with ciliae.

The last two classes perhaps take their origin in embryonic organs as yet unknown and situated in the broad ligament. The pathological diagnosis between cysts of the broad ligament and those developing in the ovary may be at times most difficult.

As to the etiology of the smooth walled variety, an inflammation of the uterine adnexa is certainly capable of producing a special activity in embryonic organs and gives rise to the formation of cysts. On the other hand,



papillomatous cysts develop in the same manner as malignant neoplasms. Contrary to the opinion generally accepted, Raimondi does not believe that pregnancy has any influence on the development of these tumors, which appear between the ages of 25 and 50 years.

The distinction between the three varieties of cysts based on pathological anatomy is also justified clinically because each type has a symptomatology of its own. In cases of cysts of the parovarium pain is not very marked, and other than slight disturbances the menses remain normal and the general health excellent, although sometimes dyspeptic symptoms may be complained of. Pain may be very severe in cases of smooth-walled cysts, and is especially marked at the times of menstruation. The menses are disturbed in the greater number of cases and usually appear before the tumor has given rise to any signs of its presence. Papillomatous cysts develop like any malignant neoplasm, and their prognosis is rendered still more serious in proportion to the amount of albumen contained in their liquid contents.

The symptoms common to all cysts are furnished the surgeon by a physical examination of the abdominal tumor, which may be present in various shapes. The abdomen is usually rounded, larger on one side than on the other, but when the patient stands up the conical shape given by ovarian cysts is wanting. The tumor will be

found oval, round, without bosses on its surface, movable and depressible, sometimes firm and tense, resisting, difficult to circumscribe at the lower part and percussion dullness covering the entire extent of the cyst, while usually a distinct fluctuation can be detected.

Vaginal examination will show the cervix directed upwards and the corpus uteri backwards, and according to some surgeons the uterus is immovable, but the contrary condition may also be present. Other common symptoms are compression of the bladder, ureter, sigmoid flexure, rectum, and infrequently the abdominal vessels.

The progress of cysts of the parovarium is slow, and their increase in size does not produce much pain. Cysts with smooth walls develop more rapidly and are more frequently accompanied by peritonitis and digestive disturbances.

As to papillomatous cysts, their development is slow, the principal characteristic being to develop after an incomplete extirpation. All these cysts may develop in size by paroxysms produced by either an inflammatory attack or by intra-cystic hemorrhage.

The prognosis should be guarded, as during an operation intestinal adhesions may be met with, suppuration of the cyst may have taken place or a fibroid of the uterus may also be encountered. Of all the cysts of the broad ligament, the papillomatous type is by far the most serious.

In making a diagnosis, all abdomi-

nal tumors will have to be considered, but in many cases it may be readily made by considering the development of the abdomen, the perceptible displacement of the cœcum or the sigmoid flexure demonstrated by percussion, on the upward direction of the cervix and the backward displacement of the fundus, on the presence of a rounded tumor in one of the cul-de-sacs, separated by a depression from the fundus, depressible, fluctuating, painless and the displacement of which is often followed by that of the uterus, and lastly on the good general condition of the patient.

Among the affections that may be mistaken for a cyst of the broad ligament we may mention ovarian cysts, ascites, extra-uterine gestation, renal neoplasms and fibro-cystic growths of the uterus.

Contrary to the generally accepted opinion, the complications of cysts of the broad ligaments are very varied. 1, Torsion of the pedicle with all its consequences may occur; 2, Intra-

cystic hemorrhage; 3, Rupture of the sac, the result of which is subordinated by the septic or aseptic condition of its contents; 4, Suppuration of the cyst; 5, Coexistence of an ovarian cyst; 6, Coexistence with pregnancy; 7, The presence of broad ligament cysts in hernia; 8, Intestinal obstruction.

The operative treatment of cysts of the parovarium is simple, but the smooth-walled type and papillomatous variety render the operation very difficult. In operating, three conditions may be met with: 1, Cysts with a pedicle; 2, The broad ligaments are incompletely dissected by the growth; 3, One or both layers of the broad ligament are unfolded down to the base and may be either adherent to or free from the surrounding organs. Both ovaries should be removed if on the opposite side from the cyst the ovary is found abnormal; if in good condition it should be left *in situ*.

## NOTES.

### JUNE ANNALS.

THE edition of the June issue has been exhausted. Subscribers who do not preserve a file of the ANNALS and will return their copy to us will receive due credit. Address 168 Newbury street, Boston, Mass.

### PHILADELPHIA PEDIATRIC SOCIETY.

ON account of pressure of original articles, the report of the June meeting is deferred to the September issue.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### AN EPIDEMIC OF DIPHTHERIA IN THE CITY OF COLUMBUS, INDIANA.\*

PERSONAL OBSERVATIONS IN ONE HUNDRED AND NINETY CASES.

GEORGE T. MAC COY, M.D.

*Health Officer.*

To the President and Members of  
The Indiana State Medical Society:

GENTLEMEN: The literature of diphtheria has become so voluminous that it is almost impossible for any one to become conversant with it. The importance of the subject shall be my excuse for attempting to add anything to it. During the last decade, many of you who are present to-day, have watched with tender solicitude the eventful gestation of "The Germ Theory of Disease." From the moment of its conception to the hour of its nativity you have carefully noted the gradual development of the embryo to the period of quickening and establishment of the foetal circulation, carefully and anxiously lis-

tened to the first sounds of the foetal heart, and watched every step in the process of preparation for the hour of final trial. The gestation was long and tedious, but the end came at last. The babe is born; it is a lusty infant, and was christened by Dr. Larabee of Kentucky, "The Germ Fact." The legitimacy of the offspring is acknowledged by you all.

I shall not tire your patience by reviewing this important period in the history of the science of medicine, neither shall I attempt a partial review of the literature of diphtheria, however interesting such a study might be. In this paper I shall confine myself strictly to the results of my own observations and avoid all reference to text-books or other medical publications.

Diphtheria made its appearance in

\* Read before the Indiana State Medical Society at Terre Haute, May 21, 1897.

the southwestern portion of the State of Indiana during the early summer of 1896. From this point its progress was steady and aggressive, in a northeasterly direction, striking Columbus with great force August 24; no less than eleven cases occurring within forty-eight hours of its onset. These cases occurred in different portions of the city, many of them widely separated, and none of them seemed to have any connection with any other case.

As the disease was known to exist in the surrounding country, and especially in an adjoining county, it was supposed that the cases in the city originated by contact with people from infected districts in the country.

From this date the epidemic spread in spite of all opposition, sixty-five cases developing during the month of September. This was a year of political agitation, and it was simply impossible to prevent public meetings; mild cases of the disease, and people from infected houses in the country, mixed freely with the non-infected upon the streets, in processions and in crowded halls. Each political "rally" was followed by a fresh outbreak of the disease. The blowing of horns and exchanging them from one mouth to another, helped to propagate the disease. Cases are known to have originated in this way. Butter made on farms where diphtheria existed, was sold in market in this city. Hired girls from infected families in the country conveyed disease

and death to more than one family.

Doctors were somewhat careless in the beginning of the epidemic. I am afraid they failed to recognize the disease in every instance, and the failure to recognize and report mild cases is one of the most prolific methods of spreading the disease and prolonging an epidemic. The resort to bacteriological examination in doubtful cases soon established the fact that during the prevalence of diphtheria, *all* diseases of the throat and respiratory passages are probably diphtheritic.

Quarantine in the city was absolute, no one but the attending physician being allowed to enter or leave the premises, the wants of the family being looked after by a sanitary police who also enforced quarantine. Without entering into a history of the management in detail, I will say that nothing was omitted from "The Rules and Regulations of the State Board of Health" (governing contagious and infectious diseases), and that I carried out these measures to the letter, relieving the physician of much annoying work, and assuring myself that the work was thoroughly done. There was perfect harmony between the attending physician and the health officer with one exception only.

Whenever information was received at this office of a case of suspicious sore throat, whether the legal report was made or not, or whether it came from a physician or not, I at once visited the premises and took all



necessary precautions, not omitting the *careful examination of the patient*. Cases of doubt were *quarantined* until a *positive* diagnosis could be made.

I received notes quite frequently from physicians asking me to see doubtful cases and in this way relieve them of much responsibility. No health officer can successfully fight an epidemic without the coöperation of his brother-physicians, and for the profession of Columbus I have only words of praise and commendation.

The diagnosis of diphtheria is not generally difficult, clinical evidence alone being sufficient in the majority of cases. Still there are many cases that can only be determined by properly conducted culture tests. Diphtheria is not always "an inflammation characterized by the formation of a false membrane," and the sooner we recognize the fact that diphtheria can and does exist in the absence of any visible membrane, the better for our patients.

It is especially essential in diphtheria that the physician should be something more than simply a clinician; if not an actual bacteriologist, he must be in touch with the most recent work in bacteriology. Several cases of fatal diphtheria during this epidemic were contracted by associating with cases in which no characteristic membrane could be demonstrated. Culture tests revealed the presence of the bacillus diphtheriæ in reddened throats twenty-four hours

before the development of a typical membrane. Typical cases of follicular tonsillitis became diphtheritic without the formation of a typical membrane, showing conclusively that during the prevalence of diphtheria, *all sore throats are dangerous*. This fact cannot be too forcibly emphasized. The term "follicular tonsillitis" is responsible for many deaths. It is the failure to recognize mild cases that prolongs epidemics, and the physician who relies upon clinical evidence alone in making a diagnosis, will sometimes make this mistake. It is impossible to study diphtheria without the aid of bacteriology.

Culture tests were made in thirty-one cases during this epidemic. Of this number, eighteen showed the presence of Loeffler's bacillus alone, nine cases showed the presence of Loeffler's bacilli with streptococci, and four cases streptococci only. The eighteen cases giving the pure cultures were all examined prior to the third day, while the cases of mixed infection and of streptococcus diphtheria were all examined after the third day.

Culture tests were only resorted to in cases where the diagnosis was doubtful, or where a mixed infection was suspected.

After the presidential election and the disappearance of crowds upon the streets, the epidemic steadily declined. There was a total of one hundred and ninety cases, not including atypical or anomalous cases. Each of

these patients I visited more than once, and carefully examined the patient at each visit. In bad cases several visits were made, so that in addition to the cases specially treated by myself, I had a personal knowledge of all cases reported. The disease varied in intensity from cases that were mild to those of extreme malignancy; neither age nor environment was respected. It visited the homes of "the well to do," as well as the haunts of poverty. Thirty-eight cases were over 15 years of age, the oldest being 63 (and a physician), the youngest 11 months of age.

The location of the membrane in these cases was as follows:

The tonsils in.....	59 cases.
The tonsils and pharynx in..	82 cases.
The nares in.....	2 cases.
The tonsils, pharynx and nares in.....	31 cases.
The larynx primarily and secondarily in.....	16 cases.

There were three cases of scarlatinal diphtheria and one case of diphtheritic conjunctivitis. (One septic case had a diphtheritic patch the size of a silver dollar surrounding the anus; this case was fatal as was the case of conjunctivitis.) Twenty-eight cases proved fatal, a mortality of 14.7 per cent. The mortality in two former epidemics ('92 and '93) was 20 per cent and 25 per cent respectively.

#### CAUSES OF DEATH.

Twelve cases died from invasion of the larynx, eleven cases from general

systemic poisoning and sepsis, five cases from heart failure. Four of the croupous cases and three cases of heart failure were also septic. The ages of the fatal cases ranged from 2 to 14 years, fourteen deaths occurring under 6 years of age.

#### COMPLICATIONS AND SEQUELÆ.

Albuminuria was present as a complication or sequel in eighteen out of forty-eight cases examined, it being found as early as the second day in six cases. It probably existed in the same ratio in the unexamined cases. Both motor and sensory paralysis was observed. It existed in some degree in about one-tenth of the cases, more than one form of paralysis being occasionally noted in the same case.

Multiple paralysis existed in two cases (septic), both recovering; it made its appearance during convalescence in both. There was cardiac paralysis in three (fatal) cases. Marked enfeeblement of heart action was a common symptom in bad cases, but is not classed among the forms of paralysis.

Palatal paralysis existed in sixteen cases. There was loss of tendon reflex in sixteen cases. A part of these also had palatal paralysis. This symptom was noted at the outset in four cases.

Defective vision (temporary) followed in ten cases, epileptic seizures in two.

Anæsthesia was present in quite a number of cases, especially affecting

the velum and walls of the pharynx: it was often found associated with other forms of paralysis.

#### TREATMENT.

As these cases all occurred in private practice, the treatment would of necessity be varied to suit the peculiar views of the very peculiar people concerned in the practice of medicine. Still there was much uniformity in treatment. In a paper recently read before the Conference of State Health Officers, the sanitary methods considered were described in detail; it will suffice in this place to say that everything possible was done to protect other members of the family and at the same time to place the patient and the sick room in the best possible hygienic condition, completely isolating them and allowing no communication with the outside world.

#### INTERNAL REMEDIES.

There were both local and general. Of local measures sprays of formalin, boric acid, menthol, peroxid of hydrogen, were all utilized and gargles of potassium chlorate, boracic acid and other astringents and disinfectants were the means most commonly used. Peroxid of hydrogen gave the best results in most cases. It was well learned that little if any good was accomplished by local treatment and in many cases it was abandoned altogether.

There are occasions when the

friends of the patient need treatment, and to satisfy them it may become necessary to use local measures. When this is the case, it is well to use some non-irritating solution occasionally, being sure that very little of it goes into the patient's throat. It is best to do this yourself or else some one in your absence may feel called upon to institute vigorous local measures. Such has been my experience. To the layman the disease is "in the throat."

Internally many remedies were used, the majority of physicians favoring stimulation, elimination and nutrition, and using different means to accomplish these ends, calomel being a remedy universally used. It was used in large and small doses and in every stage of the disease. A prompt response to a full dose was considered a favorable omen, while failure was regarded asomen of gravity, and so of other symptoms.

Alopecia, the three chlorides, digitalis, mixture of iron, arsenic, quinia, salicylates, and other tonics were the remedies most usually resorted to. Stimulants also quite frequently. Potassium was tried and abandoned.

#### ANTIDOTE.

Owing to the bitter opposition to the use of antitoxin that existed in Columbia in the beginning of the epidemic, permission to use it could not be obtained except in the gravest cases and only then as a last resort.



This prejudice was largely removed before the end of the epidemic; still antitoxine was not used as a remedy except in cases that were considered serious. Antitoxine was administered to fifty-two cases, many of these considered hopeless as far as any other treatment was concerned, and all of these severe. That is to say that out of one hundred and ninety cases varying from mild to malignant, fifty-two bad cases were selected for the use of antitoxine. No culture tests were needed to determine the character of these fifty-two cases. None of them were doubtful. Even the advocates of antitoxine did not give it to their mild cases.

The effect of antitoxine upon the temperature varied: in the majority of cases it was gradually and speedily lowered; in sixteen cases it was first raised and then lowered, the reduction being attended with free diaphoresis. Its effect upon the heart was always tonic, never a depressant. In two cases suffering from organic heart lesion with a feeble pulse of 120 and 140 respectively it added volume to the pulse, slowed the heart promptly to 100 and 105 pulsations per minute.

No evidence of shock or other ulterior effect was noticed, and in many cases decided improvement was noted as early as eight hours after injection. It was given to five cases that were menstruating; the flow was increased in all, but improvement in these cases was not as prompt as in others. Upon

the kidneys it had no appreciable effect. It was quite as effective in scarlatinal diphtheria as in the typical form. Patients to whom antitoxine was administered had a convalescence that was uneventful and from five to eight days shorter than the same class of cases treated without it. No case of reinfection occurred, and no case of group made its appearance after antitoxine was used. I have complete notes of fifty-one cases in which antitoxine was used, but time forbids their history in detail. Gilber's antitoxine was used in five cases; in the remainder Medford's was used. The dose was generally 1000 units on the first day of the disease; when given later or in laryngeal cases the amount was increased to 1500 or 2000 units. If no effect was obtained the dose was repeated in from eight to twenty-four hours. The point selected for the injection was always the flank, and when injected slowly very little pain or disturbance of any kind was produced. Two very severe cases, complicated with violent gastric symptoms were given no other treatment; both recovered.

Of these fifty-two cases treated with anti-toxine nine died, a mortality of 17.3 per cent. Five of the nine deaths occurred in less than twenty-four hours, three deaths in less than six hours. Deducting moribund cases we have a mortality of 5.5 per cent.

Analysis of these nine fatal cases.—An unfavorable prognosis was given at the time of injection in all, and



other treatment had *failed* already in seven cases.

Of the nine fatal cases, three were cases of laryngo-tracheitis; the fourth of septic laryngitis cyanotic when injected; the fifth profoundly septic with total suppression of urine at the time of injection; the sixth and seventh cases were naso-pharyngeal with total occlusion of the nares; the eighth, a case of septic laryngitis occurring as a reinfection and injected on the sixth day of the reinvasion. The ninth died suddenly one week after antitoxine had been administered from a pre-existing heart lesion of two years' duration. Her death had been expected many times during the previous year.

In *none* of these nine fatal cases was antitoxine used *prior to the fifth day*.

In six of the fatal cases, 1000 units were used in each case. In two of the fatal cases, 2000 units were used in each case. In one of the fatal cases, 800 units only were used. Could recovery have been expected? Was it even possible under such conditions?

In forty-two cases injected *prior to*

*the fifth day*, all recovered. Of nine laryngeal cases injected, five died, a mortality of 55 per cent. Of seven laryngeal cases treated *without* antitoxine, all died, a mortality of 100 per cent. An early use of antitoxine in these seven cases would have prevented an extension of the disease to the larynx.

Cases of simple hoarseness are not included in this list. Only cases of pronounced stenosis with aphonia are recognized.

Antitoxine was give to five patients that were menstruating and all recovered. Four cases that were menstruating during the attack were treated *without* antitoxine; three died. All menstruating cases were severe.

Infants nursing their mothers escaped the disease (except in one instance and in this the mother had *first* contracted the disease), although many of them were exposed, showing the protective power of the adult maternal cell manifested through the lacteal secretion, which is another point in favor of serum therapy.

TABLE OF COMPARISON OF SEQUELE IN

	Albuminuria.	Multiple Paralysis.	Palatal Paralysis.	Defective Vision.	Epileptic Seizures.	Reinfection.
52 cases treated with Antitoxine.	4	1	3	2	0	0
138 cases treated without Antitoxine.	14	1	13	8	2	10

TABLE OF CASES OF DIPHThERIA TREATED WITH ANTITOXINE.

GIVING THE AGES OF THE PATIENT AND DATE OF ADMINISTRATION.

Age.	Cases.	Recovered.	Died.	Mortality.	Moribund or Dying in 24 hrs.	Mortality.
2 years.....	4	4	.....	.....	.....	.....
3 years.....	4	3	1	25%	1	.....
4 years.....	5	5	.....	.....	.....	.....
6 years.....	3	3	.....	.....	.....	.....
7 years.....	7	3	4	57%	2	.....
8 years.....	9	6	3	33 1-3%	2	.....
10 years.....	6	5	1	16 2-3%	.....	.....
11 to 19 years...	14	14	.....	.....	.....	.....
Total.....	52	43	9	17.3%	5	8.5%
Date of Administration	1st day.....	19	19	.....	.....	.....
	2nd day.....	16	16	.....	.....	.....
	3rd day.....	6	6	.....	.....	.....
	4th day.....	1	1	.....	.....	.....
	5th day.....	2	2	100%	.....	.....
	6th day.....	5	4	80%	2	.....
	7th-8th day...	3	3	100%	3	.....
Total.....	52	43	9	17.3%	5	8.5%

I also supplied antitoxine to eight physicians outside of the city for use in nineteen cases of diphtheria. There was one death in this list and that in six hours after injection and on the sixth day of the disease: this was a laryngeal case; one other laryngeal case injected on the third day of the disease recovered. This report shows a higher mortality (8.5 per cent) than should exist. The reason is not hard

to find. 1, Antitoxine was used too late, owing to objections upon the part of friends of the patient, or timidity upon the part of the physician; 2, It was used in too small quantities and was not repeated sufficiently often; even the friends of antitoxine were too timid. A timely resort to the use of antitoxine would have lowered our mortality to 4 or 5 per cent or less.

## IMMUNITY.

For the sake of immunity, antitoxine was given to twenty-five children that had been exposed to the disease. None of these acquired the disease, although twelve of them were compelled to occupy the same rooms with cases of the disease and in two cases slept in the same bed. One of these children acquired the disease in a mild form eighty-four days afterwards upon a second but less prolonged exposure. Five children in one household were exposed to a severe case; four were injected and protected, while one boy, 16 years of age not so protected and with less exposure than the four, contracted the disease.

Antitoxine may be said to have scored the following points in its favor:

- (1) Prompt arrest of the disease.
- (2) Non-interference with the use of other remedies.
- (3) Fewer sequels.

(4) Prevention of croup and re-infection.

(5) Shortened convalescence.

(6) Lessened death rate.

Among the opponents of antitoxine are not many men of note, and their number is steadily decreasing; their opposition does not rest upon original investigation, and their opinions are not based upon personal experience. Those with the largest experience are loudest in its praise. It is among the bedside observers that antitoxine numbers its friends. There is nothing so convincing to the careful, conscientious physician as the daily observation of *bad* cases of diphtheria recovering under the use of antitoxine.

Test antitoxine as you would any other remedy; use it early in the disease. If it stands the test of clinical experience, it is a valuable remedy. If it fails it should be abandoned.

Clinical medicine indeed must continue to be the court of final appeal.

1127 Pearl street.

## HYGIENE OF INFANCY, BABYHOOD\* AND EARLY YOUTH.†

F. W. EPLEY, M.D.

OF all the suffering to which human flesh is heir, none perhaps is more acutely painful and distressing than that caused by sore nipples in the act of nursing. How often do we see the

young mother writhing with pain, and the big tears streaming down her cheeks in her heroic efforts to nourish her offspring. This crowning act of motherhood, this climax of maternal affection turns into tortures akin to those of the Inquisition. If we look for the cause we shall not have to

\* Read before the Obstetrical Section of the American Medical Association, 1897.

† Read before the Wisconsin State Medical Society at Racine, May 6, 1897.

search long. Improper habits of dress have cramped the glands and imbedded the nipples within them, or if begun early enough have prevented the development of the nipple so that if any have grown they are distorted and retracted out of all semblance to the proper shape and figure. This in turn has cramped and distorted the larger milk tubes leading to the nipple until when lactation takes place it is nearly or quite impossible for the infant to get hold of it, and if it does, the result is, the folds of inverted skin are drawn out, the accumulation of skin cells are easily displaced leaving only the most delicate layer of true skin to withstand the irritation and violence of the nursing act. This it is wholly unable to do, and the result is in drawing the nipple out the skin is fissured. The crack becomes deeper and deeper, nursing more and more painful, until the poor mother gives up in despair. By this time infection has taken place or by reason of the distorted milk ducts the proper discharge of the lacteal fluid has been impossible, and mastitis and abscess with all their painful sequelæ supervene.

The remedy. Is it alcohol baths? No. Is it boracic acid baths? No. Astringent washes, such as tannin, alum, lead, zinc, etc.? Not at all. It is just simple plain common sense, but this must be applied before confinement; it is too late after lactation has actually begun. Let us see what we have. Two months before the end of gestation a small, stunted, de-

formed, retracted, very tender nipple, exactly what we do not want in any particular. We want for baby's use a large, *long* (I never saw one too long), well formed, protruding, tough-skinned nipple. Can we make it? We *can*. How? By exactly the same process by which any part of the body may be developed and toughened. By frequent regular exposure, use and irritation. At the end of the seventh month the nipples should both be subjected to a regular systematic course of massage,—pulling, rubbing, rolling and *stripping*, and especially the latter. This cannot be done too often or too thoroughly. The result will be most gratifying. The otherwise wholly useless and worse than useless organ will be prepared for its work; lactation will be free and painless. The glands will be well and easily emptied; the nightmare of fissures, mastitis and abscess will disappear never to return, and the young mother can hug her baby to her breast.

In my early years of practice I have experienced all the evils of neglect and mismanagement of the maternal font, until driven to desperation almost by my repeated failures to relieve this most distressing condition, it occurred to me to put into practice this simple common-sense plan of preparation, and I have had the extreme gratification of seeing all my patients so treated go through lactation with only sensations of pleasure.

My only defense for the principles



embodied in this paper is that they are based on observation in an active practice of general medicine, extending over a period of twenty years and the rearing of a family of five children who are almost never ill.

When a baby presents himself for admittance into the family circle he should receive a *warm* welcome. The temperature of the welcome should be maintained until the little fellow is able to kick and jump with sufficient vigor to maintain a healthy circulation. If he is strong and vigorous, he should have one good general bath; after that he should be kept simply clean. The common practice of giving the poor little creature a daily scrub all over with soap and water is to be discouraged; soiled or wet linens should never be allowed to remain in contact with the delicate skin and when changed should be replaced with warm, soft, clean ones. The eyes should be kept clean, but never washed with the same cloth used for the general bath. For this purpose, a clean cloth, clean water and no soap should be used. Feed regularly but not oftener than once in two hours. I do not lay this down as an *arbitrary rule* never to be broken *because* I know how it is myself. However, this is an important point; the little stomach needs rest, and great good can be done towards the fostering of the digestive and assimilative powers by an intelligent observation of this principle. If I never had personal experience, I would say, *never* under any circumstances feed a baby oftener

than once in two hours. Teach them to drink early. *Wash* the baby's mouth, gums, tongue and cheeks regularly. If the mother is weak, sick, thin in flesh or loses flesh while nursing to any marked degree, if the baby does not seem to thrive or the mother's milk is not sufficient and has to be supplemented by other food after she has resumed her accustomed place in the household, wean the baby. A good healthy cow is far preferable as a commissary department for baby to a mother's breast which is wanting in any essential quality.

I did not read this in a book or hear it in a lecture room. In the selection of a cow great care should be taken to get one free from disease. She should be tested by a veterinary for tuberculosis; kept in clean, dry quarters, fed regularly on clean hay and bran and in winter given water slightly warm to drink. If she becomes heated or worried or excited in any way unduly, the milk should be suspended and some preparation containing milk as a basis should be used until the cow regains her normal condition. Use simple nipples pulled over the mouth of the bottle. Teach baby to drink as soon as possible and discard the bottle altogether. For the first year only soft woolen fabric should come in contact with the skin and there should be plenty of outer clothing to keep the body warm. It is true they have great powers of resistance, but it is a fact that many a baby has been buried because the mother, being over-zealous to have her baby look prettier

than her neighbors, has changed the wool fabrics for light, white goods. She has not realized the chilly air as evening approached, has put the little one to bed in its cotton underclothes or night dress; the baby during the night has become chilled and a fatal cholera infantum or entero-colitis has been set up. No matter how warm the night, the bowels should be covered with flannel. At home is the place for the baby under all circumstances and conditions. There is no exception to this rule, especially during the heated summer months. New faces, strange surroundings and the fatigue of travel are prolific sources of indigestion and its natural train of evils. It is these and the natural strain upon the delicate nervous system incident to them and not the change of food which makes baby sick. It is not within the province of this paper to enter into the discussion of distinct diseases or their treatment. There is a condition, however, upon which I wish to touch briefly before closing. It is that of faulty nutrition. The baby eats well and apparently digests its food. The stools are normal in consistency, and color and the bowels act regularly. Yet do what you will, the little patient will not thrive: it becomes emaciated, pale, anæmic and weak. Foods may be changed *ad libitum* yet to no purpose. Medicines seem to have little or no effect, and we find ourselves at our wits' end to know what to do next. It is in this condition that, thanks to the recent developments of experimental physiology,

to the revelations of the microscope and the skill of the manufacturing chemist, we are not now helpless. We have a principle, compact and stable in form, easy of administration and palatable to the child, which if given six times daily in doses of one grain for a patient one year of age will almost certainly reestablish nutrition and resistance to disease. I refer to protonuclein.

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The most essential thing to all animal life is fresh air: and nothing in all the world is more free. It is nowhere so pure as where it can circulate freely. The next thing is sunlight, and what is freer than light? The next most essential thing is water. All these are absolutely free. The next is milk in the early stages of life, and later bread, and—that is all. These alone will build a great big, strong, healthy man, and are certainly all that is required for a child to live and thrive upon to the age of 12 years. I do not mean to be understood that all other food is to be discarded; but the nearer the child can be kept to this simple diet, the less need will be found for the physician. A child will barter its soul for something sweet. A reasonable quantity of pure sweet is not especially harmful to the growing child if taken after a full meal; not the smallest amount of sweet of any kind should enter the child's mouth for at least two hours before meals.

When a child enters school life, its physical development is at once put

in jeopardy. The confinement is irksome to him, vicious habits of position are learned and, I am sorry to say, actually *taught* and insisted upon by some teachers, the most prominent of which is to sit with arms folded in front. It throws the whole frame out of balance, and superinduces deformities of the spine, dyspepsia, constipation, and last but not most important, narrows the capacity of the lungs. Then begins a race which is to test the endurance of the subject. The nerves are strung up to the key of contest in the primary department; lines are sharply drawn between grades; to fall behind the grade is a disgrace, and discouraging; to maintain a standing and "pass with the class," demands a nerve tension which is suicidal to the healthy development of both body and mind. Show me a young mother who has maintained her standing in class through the common school and the University, and whose mother before her accomplished the same thing at the average cost of physical and mental strain, and I will show you a mother who cannot successfully nourish her offspring.

Our system of education is not sufficiently elastic. Our children go in at the big end of the machine, and are submitted to its "damned horrid grind." A few of them emerge from the little end bright and shining lights, ornaments to society and the business world, many more of them emerge cripples for life in body and with minds too great for the

physical frames which are to manipulate them. The result is disastrous. Our whole curriculum of study in our public schools is planned with direct reference to and with the sole object of entering the State University, when, in fact, not one in twenty of the pupils ever *see* the State capital, to say nothing of entering the University.

During the period of development of both mind and body, neither should be overtaxed. Study hours should mean only those spent within the school room. The necessity for pupils to bring their books home and study until midnight, should be prohibited.

Text-books should be plain and explicit; no propositions should be put in the form of a riddle, as many of them are, so much so that business men of profound educational and practical attainments, are unable to unravel them. They should be printed on dull faced paper, pure white, with black ink, and in letters large and plain—well leaded, so that the lines are nearly twice as far apart as the length of the small letters. And this brings us to a subject which should interest even the Humane Society for the prevention of cruelty to animals, namely, the preservation of natural eyesight.

When we step into one of our school rooms and look over the young bright faces we are appalled to see what a large proportion of them are being made cripples for life by wearing glasses. After



a child has worn glasses for a time, the defect in their natural eyesight becomes permanent, and they are doomed to wear them the rest of their natural life. The prescribing and fitting of glasses to a child who is suffering from a weakness of accommodating power becomes a practice nearly akin to crime. What would be thought of a surgeon, when called to treat a fracture, if he should at once get the patient up on crutches and allow him to hobble about without any attempt to reduce the fracture and secure a healthy repair of the same without deformity or loss of power? He would be severely censured to say the least, and yet scores of these poor little victims are just as amenable to treatment and cure with perfect eyes resulting, as is the patient with a fractured limb. I am not speaking theoretically, I am speaking from actual experience, and am amply able to substantiate what I say. "Practical opticians" are congregating in all our cities and towns who know absolutely nothing of the physiology and pathology of the eye, to say nothing of the thousand and one ailments of the rest of the body which effect the eyes by constitutional channels. These are systematically making cripples of our children. If a child has trouble with his eyes, he should be treated by an intelligent physician. If necessary, the services of an oculist should be secured, and every means for restoring the organs to a normal condition exhausted before a resort to glasses is thought of.

Our schools should have shorter sessions. Pupils should be taught to learn by observation. Practical training should be regularly introduced in every school. Pouring over the modern text-book with its abstruse propositions, fine print, and close lines, until nearly or quite midnight, is sapping the vitality of our nation.

Parents should obtain, maintain, and enjoy the most implicit confidence of their offspring. Children should be instructed by their *parents* in all matters pertaining to the reproductive organs. This should be done early. Do not wait until vices and bad habits have taken hold of the child. Talk with him freely and earnestly about it. Point out all the evils and dangers arising from carelessness and evil associations. Give the boys good, wholesome advice about proper employment, enter into their sports and show them that you sympathize with them and sanction their efforts to excel in manly sports as well as in work. Encourage wholesome amusements for both sexes. That which takes them out of doors and keeps them moving is most valuable. Our girls need more exercise; one of the very worst habits for a girl to form is a sedentary one—our girls sit in the parlor and read too much. This is most pernicious; nothing could be more harmful. We, as a nation, must do something to cultivate the physical development of our women. They are growing so weak and their nerves are strung to



such a high tension that they are becoming almost wholly unfit for the fulfillment of the function for which the Creator designed them. We, as a nation, wantfully-developed, strong, vigorous women, house-workers and home-makers in every sense of the word. We need no more pale, puny houseplants, no more sensationalists,

no more novelists; and I know of no more promising agent to bring about this much needed change than the modern bicycle. It flies through the pure fresh morning air, and the breezes paint roses on our dear girls' cheeks.

New Richmond, Wis.

## A LIMITED EXPERIENCE WITH CALOMEL IN THE TREATMENT OF CATARRHAL PNEUMONIA.\*

C. W. GOSS, M.D.

IN the early part of my professional career, my first two cases of serious illness happened to be catarrhal pneumonia; both in the same family, and both secondary to whooping cough.

The children were aged respectively four and five years, and when I saw them the first time, the characteristic râles were heard distinctly over the chest, with slightly labored breathing, and a mild degree of cyanosis. Fair-sized doses of triturate of calomel (1 gr. of calomel to 10 gr. of sugar of milk), were administered every two hours until the bowels were freely moved, which caused some degree of amelioration in their condition. I then put them on liberal doses of the carbonate and iodide of ammonia, and watched them through the next three days with a considerable amount of uneasiness. Forty-eight hours from the time they

were put on the ammonia preparation, they were fighting for air, and the cyanosis was much more pronounced.

Turpeth mineral was resorted to from time to time, and after each emesis, there was temporary relief, only to be followed by worse dyspnoea later on. Such was the history of these two children, until, at the end of three days, they died an hour apart from carbonic acid poisoning. A year later, I met with cases three and four in separate families, their ages being two and three years respectively. My first visit found both little ones fairly well advanced, and in a fair way to develop that terrible dyspnoea, which I had observed in the two previous cases. They were at once put on the triturate of calomel until there was free catharsis; with a moderation in their symptoms. It was at this time that I decided to keep them under the influence of calomel; administering it of-

\* Read before the annual meeting of the Ohio State Medical Society, May 19, 1897.

ten enough and in sufficient quantities to produce four or five watery stools a day. Much to my surprise, the cyanosis did not increase, and at no time was there any special effort on the part of either child to get its breath. Both were convalescing nicely at the end of five days. Here were two different plans of treatment, with decidedly different results, and the odds in favor of the calomel. Now comes case number five, a stout, robust boy, six years of age, and who was complaining of a cold a week before I saw him. I found him with a temperature of  $103.5^{\circ}$  F., bowels constipated, tongue coated, and sub-crepitant râles all over the chest; cyanosis and labored breathing were both present. I at once ordered good-sized doses of the triturate of calomel every two hours, and at the end of eight hours, the bowels were well moved. From this time on the patient convalesced nicely, and at the end of six days, during which time he was constantly under the influence of calomel, he was up and around. Cases six, seven and eight, were well marked cases of catarrhal pneumonia, and made an uneventful recovery, with the exception of the youngest, a girl one year old, whom I was compelled to vomit once, because of unusually severe dyspnoea.

We will now wind up this rather odd and detailed description of cases, by speaking of the last four collectively, which are strung out through a

period of two years. They were all quite severe, but uniformly yielded to the calomel. Of course, it must be understood that along with the calomel treatment, careful feeding and judicious stimulation was resorted to.

We now have a record before us of two cases of catarrhal pneumonia, treated by the ammonia preparations with two deaths, and ten cases treated by calomel with no deaths. In conclusion, it might not be inappropriate to speak of the antiphlogistic and cholagogue properties of calomel, as they are well known to the profession, and it is through these properties, that the above results, in my judgment, have been obtained. Is it not true that when inflammation is relieved or modified, secretion is lessened, and equally true, that when the secretions of the body are in a normal condition, absorption is much more liable to take place?

I am aware that my experience with this plan of treatment is quite limited, and will require more extended observation to establish its worth, and I simply offer the few cases coming within my experience with the hope that gentlemen of larger opportunities and riper experience may be induced to give it a trial and report results. For the present, I shall content myself to pursue this line of treatment until something better offers.

Lancaster, Ohio.

## SUMMER DIARRHŒA IN CHILDREN.\*

I. H. C. COOK, M.D.

THE above subject has no doubt to many of you seemed to be worn threadbare, but my excuse for writing an article on this subject at the present time is the frequency of the disease, and its great fatality in our climate.

Diarrhœa is a term which only describes a symptom, and does not constitute a disease by itself, but is frequently used in that sense.

Diagnosis.—Summer diarrhœa of infancy is usually meant to apply to all looseness of the discharge from the bowels beyond the normal, occurring during the summer solstice, and are usually divided into an acute and chronic form.

Causes.—The causes of this disease are various, but the principal cause is recognized as the excessive heat of summer, bringing about a variety of conditions, both of an atmospheric and circumstantial nature. The atmospheric condition is one of extreme heat, the circumstantial are those resulting from surrounding circumstances, such as diet, squalor, filth and a general unhygienic condition. Most cases originate from excess of heat. A short exposure in the hot sun of a tender infant I have known to result in this condition, without any other known cause operating.

Course.—The attack usually comes on suddenly after an unusually hot

sultry day or night, or after exposure for a short time in the hot sun, or in a close, hot room. There is usually high temperature in the acute stage, associated with restlessness, nausea, vomiting and purging of a bad brassy-smelling discharge from the bowels, attended with sighing and jactitation and great thirst. Following this is the stage of collapse. The pulse and skin are variable; sometimes the skin is moist, sometimes hot and dry. The pulse is full and frequent in the first part of the attack, but becomes frequent and small and very weak in the second stage.

I have described here a typical case, one usually called "cholera infantum." These cases are not all so typical or so severe; but, mild or severe; they have many symptoms in common.

The first discharges are mixed with the sour-smelling, undigested food, but afterward contain only a thin or thick mucus mixed usually with a little blood and shreds of mucous membrane.

The color from being at first light, rapidly changes to a dark greenish color; the child, if the case be severe, gradually becomes comatose, is easily aroused but rouses in a fright, and will commonly drop back into a stupor.

The discharges now become of an involuntary character. The temperature in the first stage usually runs up

\* Read before the Mississippi State Medical Association, April 22, 1897.

to 103° F. to 104° F., till the profuse diarrhœa sets in, when it drops down to 101° F. to 102° F., the higher temperature being in the evening. If these cases receive proper treatment they usually recover in seven or eight days, so that they will have missed abnormal temperature, and the diarrhœa will have been controlled; but if a temporizing treatment has been carried out, they will gradually reach the chronic stage, providing they have not died before.

The chronic form consists of a continuance of the acute stage, but there is now more blood, less nausea and vomiting, the tongue gradually becomes clean, becomes red at the edges; the child becomes irritable and is greatly emaciated.

There is often at this time a true stomatitis or an inflamed condition of the fauces, gums and tongue.

The disease either goes on till the child dies from inanition or is gradually restored to health by proper treatment.

It is now denied by a goodly number of the profession that dentition causes any trouble of the bowels in children. I believe it is frequently an influencing factor, especially during the second year of dentition, and more especially, when the canine and stomach teeth are coming through the gums, for I have too often seen relief from cutting through the gums down to the teeth.

The chief cause is undoubtedly the effect of heat on the vasomotor nerve centres, together with the

imbibition of indigestible substances.

**Pathology.**—The pathology of this disease seems to be at first a congestion of the bowels and chylipoietic viscera and extends when unchecked into a true inflammation of those organs.

**Prognosis.**—This is dependent upon various conditions.

If in the family of the intelligent and those who have the comforts of life and favorably surrounded by correct sanitary conditions, especially in the country, the prognosis is favorable. If the case is among the ignorant and among the extremely poor in either country or city, it is not so favorable, but extremely fatal. Even among the intelligent and wealthy, where the sanitary surroundings are bad, the prognosis is bad.

**Treatment.**—I will not undertake here to give all the various treatments urged by the various authorities, but will give the treatment found most efficient in my experience.

In this as in all other diseases, "an ounce of prevention is worth a pound of cure." To prevent the disease is the best part of our duty, if we could succeed, but unfortunately for the children, and may be fortunately for the doctor, we fail to carry this idea to a success. The best prevention is to keep the child from the extremes of heat by various means, such as in open cool rooms, out of the hot sun and by the aid of baths.

Whenever a child begins to fret from heat the indication is plainly to



reduce temperature, and the quickest and safest way to do this is by means of the tepid bath. This can be repeated several times a day and at bed-time if need be. However, once in the forenoon and once or twice in the afternoon usually suffices.

The child should not be allowed to remain longer than from two to three minutes in the bath ordinarily as there is danger of chilling the surface, which is just what we do not desire. Now, the child has the acute disease and we are at the bedside: what are we to do?

First, reduce the temperature by means of a bath down to at least 100° F., which will usually be done in from three to five minutes. After removing the child from the bath, wrap it up comfortably, after rubbing it off dry. The bath can be repeated as often as is necessary to keep the temperature in proper bounds, not allowing it if possible, to go over 100°, as 101° F. is a high temperature for a child to stand long.

Second, quiet the vasomotor nerve centres. The bath usually does this, temporarily, but for a more permanent effect, and to aid the bath, I use a mild opiate, not one to control the bowels entirely, but one to influence the nerve centres. A combination of elixir codeine with syrup or elixir of fennel answers the purpose well.

The third indication is to bring about a normal condition of the secretions. The mild chloride of mercury alone in doses of 1-6 to 1-3 grain every hour or a combination in the

formula below, answers as well as any I have found.

℞ Calomel gr. ii.  
Bismuth sub-nitrate gr. xxx.

Misce et div. in chart. No. 12.

Sig. 1 every hour or two.

Or,

℞ Calomel gr. iii.  
Soda bicarb. gr. xv.

Misce et div. in chart. No. 10.

Sig. 1 every hour or two till the discharges are changed and the tongue is cleaned off.

The thirst is very troublesome and while the baths modify this condition, it is necessary to allow frequent draughts of water that has been boiled and allowed to cool.

It is best, however, not to allow large drinks of water till the mild chloride has relieved the nausea and vomiting, which it will usually do after a few doses are retained. Sometimes the application of cold to the stomach and bowels gives great relief, especially when there is great heat in those regions. On the contrary, sometimes, warmth relieves the symptoms of pain and nausea, especially in the later stage of the disease. This will be left, to a great extent, to the effect each or either application may have as to the comfort or non-comfort of the patient.

If there should be a remittance of the accompanying fever or a history of intermittency with a malarial cachexia, we should resort to some preparation of the Peruvian bark.

The tasteless forms of quinine can generally be given after beginning

with the calomel, and can be repeated as often as necessary, to suit the gravity of the malarial symptoms.

The digestive tract is usually left in a very weakened condition and is difficult to get back into a normal condition.

Some preparation of pepsine should be given after each meal or time of taking nourishment. The diet is a great desideratum. Milk and lime-water in a general way agree with most cases after a few doses of calomel are retained, and the fever lessened. Malted milk (Horlick's) I have found to be palatable and readily assimilable in most cases, but all milk has to be given with care and the discharges carefully noticed to see that it does not form curds in the intestinal tract, and irritate the bowels and produce harm instead of good. Lactated food, chicken broth are all good where milk disagrees.

Sweet milk is not safely given alone when there is much fever, and I make it a rule not to give it.

In the chronic form when it is generally not necessary to give the mercurial, it becomes expedient at times to give some laxative to carry off the partially digested food, and in this case the aromatic syrup of rhubarb, together with flushing the rectum and colon by means of a fountain syringe answers well. This is sometimes necessary also in the latter part of the acute form where there is much tenesmus.

The water should have been boiled and should be used as hot as can be

borne, and the flushing continued at least till the water returns clear. The injections should be without force, slowly and not in haste as the water will be forcibly ejected and fail of its purpose; and the child will bring all of its powers of resistance into play. If the gums are swollen, especially if the canine or stomach teeth are trying to come through the gums, I do not hesitate to cut through the gums down to the teeth.

The preparations of pepsine I prefer to use are those containing a considerable amount of diastase. Malto-pepsine (Tilden & Co.'s) has long been a chief reliance with me in the following formula:

**R** Malto-pepsine  $\bar{\text{z}}$  vii.  
Glycerine  $\bar{\text{z}}$  iii.  
Aqua qs. *ad*  $\bar{\text{z}}$  viii.

Misce.

Sig. 1 teaspoonful after food.

If malto-pepsine is not obtainable or convenient, lacto-peptine or liquid diastase may be used. Taka-diastase (R. D. & Co.'s) has been highly recommended. If an excessively acid condition of the primæ viæ continues to exist, the sub-nitrate of bismuth is combined in the above prescription so as to give from 8 to 10 grs. at a dose; the dose being one teaspoonful after each meal and after each discharge from the bowels, till the peculiar actions from bismuth are obtained, then after each meal only.

Frequently nothing seems to do more than keep them alive till cool

weather approaches, when they rapidly recover.

I have seen some cases of the chronic form improve while taking a

preparation of tincture columbo, gentian, rhubarb and elixir of pepsine given before meals.

Augusta, Miss.

## BOOK REVIEWS.

*(All Exchanges and Books for Review should be sent to DR. C. G. CUMSTON, 871 Beacon Street, Boston.)*

**DIFFERENTIAL DIAGNOSIS AND TREATMENT OF COMA.** Embracing points in lectures of, and revised by Professor A. P. GRINNELL, M.D. Medical Department, University of Vermont. Arranged by George A. Huntley. Burlington, Vt. 1897. Price 16 cents.

This is an excellent chart embodying observations on all the more common forms of coma, such as that of uremia, diabetes, apoplexy, alcoholism, epilepsy, etc. The author has noted briefly the history, onset, physical condition, temperature, pulse, odor, urine, convulsions, etc., and makes good, brief, practical suggestions on treatment. The price merely covers cost and should ensure a wide circulation.

**A TEXT-BOOK OF OPHTHALMOLOGY.** By JOHN W. WRIGHT, M.A., M.D., Professor of Ophthalmology and Clinical Ophthalmology in the Ohio Medical University. J. L. Tranger, Printer and Publisher, Columbus, Ohio. 1896.

This book was written for the use of students in the class-room and at clinics. For this purpose it seems admirably adapted and hence, like other books with a similar purpose, it is likewise of great value to the busy general practitioner, young or old. An

excellent feature is a quite complete ophthalmological glossary.

**HYSTERIA AND CERTAIN ALLIED CONDITIONS; Their Nature and Treatment,** with special reference to the application of the rest cure, massage, electrotherapy, hypnotism, etc. By GEORGE J. PRESTON, M.D., Professor of Diseases of the Nervous System, College of Physicians and Surgeons, Baltimore. Illustrated. P. Blakiston, Son & Co., Philadelphia, Publishers. 1897. Price \$2.00.

All general practitioners will agree with the author as to the frequent occurrence of hysteria and similar nervous disorders. We all know, too, how obstinate they are and how often they seem not to be amenable to medical or hygienic treatment. This volume will, therefore, we believe, be widely welcomed among our English-speaking physicians. It contains a careful historic and scientific description of the disease, its aetiology, symptoms and diagnosis. The author has himself made an abundance of observations, but numerous reference footnotes attest his wide reading and study of the subject. Seventy-five (75) pages are devoted to treatment along the lines indicated in the sub-title. Especially striking among the illustrations are the reproductions of Richer's beautiful drawings.

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## ORIGINAL COMMUNICATIONS.

### INTRA-ABDOMINAL SHORTENING OF THE ROUND LIGAMENTS FOR POSTERIOR DISPLACEMENTS OF THE UTERUS.

MATTHEW D. MANN, A.M., M.D.

It having now been settled that abdominal section as a method of treating pelvic disease is not to be given up, I wish to call renewed attention to an operation for the treatment of posterior displacements of the uterus, which I proposed to the profession in 1895. My experience with it has been very considerable, and I consequently feel justified in again asking for recognition.

The operation was first done June 1, 1893, and is described as follows: The patient being placed in the Trendelenburg position and the abdomen opened, adhesions are broken up, any other necessary operative procedure completed, and the uterus replaced; then, placing a large flat sponge over

the intestines, the uterus is pulled up as near the abdominal wound as possible. The round ligament of one side is made tense, by pulling the uterus to the opposite side, and is seized by two long-handled hemostatic forceps, the points of seizure dividing the ligament as nearly as possible into three equal portions.

The next step consists in passing a needle, threaded with catgut or silk, through the round ligament just outside the forceps that are nearest to the abdominal wall, and then under the point where the round ligament is inserted into the uterus, a considerable quantity of uterine tissue being included in the suture. The hemostat being removed, the loop of liga-



ment is tied to the uterus. A second stitch is passed through the ligament just as it leaves the abdominal wall, and then through the round ligament at the site of the other forceps. The ligature is tied and cut as before. In this way the ligament is doubled on itself twice, and three thicknesses of round ligament are stretched between the sides of the pelvis and the wall of the uterus.

The same thing being done on the opposite side, the wound is closed as usual.

The cases in which this operation is indicated are those in which, a backward displacement of the uterus existing, the abdominal cavity is opened for any purpose, such as reparative work on diseased tubes and ovaries, the breaking up of adhesions, removal of one tube and ovary, removal of an ovarian cyst, a pediculated fibroid, etc.; also in cases where Alexander's operation has been tried and has failed, or is contra-indicated for any reason. I believe that in every abdominal section for pelvic disease we are doing only half of our duty if we leave a malposition of the uterus uncorrected.

The operation does not compete with Alexander's operation, which I have adopted and now thoroughly approve, and which fulfills the indications in most uncomplicated cases. Where both tubes and ovaries are removed, or where the woman has passed the menopause, the operation of ventro-fixation or suspension will

perhaps be found easier; but I consider that operation, which is neither anatomically nor physiologically correct, contra-indicated when the possibility of subsequent pregnancy exists.

In the case of a retroverted and adherent uterus, it might be preferred to open the posterior cul-de-sac and free the uterus from adhesions, and then do Alexander's operation, as suggested by Polk. I have tried this a number of times, but with rather indifferent success, and prefer my own operation where it is necessary to open into the peritoneal cavity. I do not think it applicable to cases of prolapse or cases of retroversion where the utero-sacral ligaments are very much relaxed. I have a few times supplemented it by shortening of these ligaments.

I have performed the operation sixty-seven times; and, although I have been unable to follow all my cases, I have so far never met with a single failure. There can be no primary failure, nor do I see how the ligaments can stretch out again.

I have known of but one case in which pregnancy has occurred subsequently. This was case No. 598. The patient reports that she never had a more normal pregnancy or an easier labor. The fact that pregnancy has not followed the operation is not surprising, because in so many cases extensive disease of the tubes and ovaries existed, while in a few of them both tubes and ovaries were removed. As the uterus is held in its

normal position and as the round ligaments can stretch and grow as well as they could were they not stitched together, there is no reason why pregnancy or labor should be interfered with by this operation.

Until very recently I used silkworm gut for the ligature, and, personally, I have seen no instances in which the silkworm ligature has given trouble. Not long ago Dr. C. C. Frederick of this city informed me that he had had two cases of abscess around the silkworm gut. In one, in which I operated, an abscess formed two years after the operation. On opening the abscess in the groin, he succeeded in getting out a loop of silkworm gut, hooking it out with a crochet needle. The wound then healed kindly. The other case was one of his own, where an abscess had formed upon each side, and where he was obliged to remove all four of the loops of silkworm gut before the patient finally recovered.

With such an experience, I do not feel justified in recommending silkworm gut any longer. I have, therefore, modified the operation, using catgut, or perhaps silk, instead of the silkworm gut, as originally recommended. The catgut can be chromicized or treated with formalin so as to make it resistant. Instead of putting in two stitches on each side, I have lately put several finer catgut stitches so as to bring the ligaments together and induce adhesions between all the approximated surfaces.

I do not bring the operation forward as one which should be done in uncomplicated cases, so that only in rare exceptions would I recommend that the abdomen be opened with this operation as the sole indication. Retroversion is often complicated by more or less extensive disease of the tubes and ovaries. Many times it is necessary to remove these organs entirely, but a portion perhaps of one ovary, or even one whole ovary, can be left. This and other conservative work can, I believe, be much better done by the abdominal route than by the vaginal, and it is in this class of cases that the operation is particularly recommended.

Sometimes where we have very large ovarian tumors, the uterus lies behind the tumor. Shortening of the round ligaments, which have been over-stretched by the pressure of the tumor, will afford the necessary relief and correct the displacement. Nobody claims that this can be done through the vagina, and it will ever remain an indication for abdominal section. To simply remove the tumor is not enough. The patient's life may be made miserable afterwards by the displacement.

The table of cases which is appended shows inclusively the indications which have led to the performance of the operation. It will be noticed that in some instances the abdomen was opened solely for the purpose of shortening the ligaments. This was before I understood and

practiced Alexander's operation. I do not consider it a proper practice at present, except in the case of small badly developed uteri in women who have never borne children, in whom the round ligaments are apt to be very small and in whom Alexander's operation is pretty sure to fail. In a

few cases it was done after Alexander's had been tried and failed.

The mortality in the list appended was slight. One case, a very severe one with dense and extensive adhesions, died of obstruction of the bowels; and the other died of pulmonary embolism on the second day.

TABLE OF CASES OF INTRA-ABDOMINAL SHORTENING OF THE ROUND LIGAMENTS FOR POSTERIOR DISPLACEMENTS OF THE UTERUS.

No.	Case No.	Age.	No. Ch.	Indications.	Other Operations.	Result.
1	466	26	2	Prolapsus.	Cervix, anterior vaginal wall and perineum closed.	Recov.
2	469	37	1	Retroversion, salpingitis on right side, with adhesions.	Right tube and ovary removed.	Recov.
3	472	38	8	Retroversion and salpingo-oöphoritis.	Both tubes and ovaries removed.	Recov.
4	483	34	0	Retroflexion with adhesions.	Dilatation and euretting.	Recov.
5	493	59	4	Fibroid of ovary. Uterus completely prolapsed.	Removal of fibroid from left ovary weighing 5 lbs.	Recov.
6	495	41	5	Retroversion and diseased appendages: adhesions.	Tubes and ovaries removed and uterus euretted. One catgut suture through the fundus and abdominal wall.	Recov.
7	500	38	1	Retroflexion with adhesions.	Retractores shortened. Catgut suture passed through back of fundus and abdominal peritoneum and muscle.	Recov.
8	503	38	0	Retroversion with adhesions.	Tubes and ovaries removed. Uterus dilated. Small fibroid removed from the fundus.	Recov.
9	519	26	2	Retroversion: enlarged and prolapsed ovary.	Removed 3-4 of the left ovary and the stump of right tube. Right ovary seemed to be absent; right tube was a blind stump, 3-4 of an inch long.	Recov.
10	525	42	2	Retroflexion; ovaries prolapsed, tender and enlarged.	Ovaries and tubes removed. Uterus euretted.	Recov.
11	535	32	1	Retroflexion with adhesions. Prolapsed ovaries.	Small cyst excised from right ovary and both ovaries stitched up to the broad ligaments with catgut.	Recov.

TABLE OF CASES OF SHORTENING OF THE LIGAMENTS—CONTINUED.

No.	Case No.	Age.	No. Ch.	Indications.	Other Operations.	Result.
12	537	30	2	Retroversion; prolapsed and enlarged left ovary.	Left tube and ovary removed.	Recov.
13	545	35	1	Retroversion of the uterus. Prolapsed ovaries. Adhesions.	Left ovary stitched up to the broad ligament with catgut.	Recov.
14	548	26	1	Retroflexion and adhesions. Prolapsed and diseased appendages.	Right tube and ovary removed.	Recov.
15	552	29	1	Retroversion; diseased tubes and ovaries. Adhesions.	Hematoma removed from the left ovary. Right tube and ovary removed.	Recov.
16	566	52	6	Retroversion and fibroid.	Uterus curetted. Trachelorrhaphy; anterior colporrhaphy; perineorrhaphy; myomectomy.	Recov.
17	575	17	0	Retroversion of the uterus. Prolapse of the ovaries. Adhesions.	Left tube and ovary removed.	Recov.
18	578	34	2	Retroversion with adhesions. Diseased ovaries.	Left tube and ovary and part of right ovary removed.	Recov.
19	581	29	2	Retroversion and diseased appendages. Adhesions.	Tubes and ovaries, except a part of left ovary, removed.	Recov.
20	588	17	0	Retroversion.	None.	Recov.
21	589	35	0	Retroversion with adhesions.	Portion of the right ovary removed.	Recov.
22	592	37	2	Retroversion.	Perineorrhaphy.	Recov.
23	593	29	1	Retroversion with adhesions.	Portion of left ovary removed.	Recov.
24	596	41	3	Retroversion.	Repair of cervix and perineum.	Recov.
25	598	41	3	Retroversion.	Repair of cervix and perineum.	Recov.
26	600	32	1	Retroversion with adhesions.	None.	Recov.
27	603	29	2	Retroversion. Pus tubes and adhesions.	Both tubes and ovaries removed.	Recov.
28	612	38	5	Retroversion with adhesions. Umbilical hernia.	Hernia closed.	Recov.
29	618	28	0	Retroversion with adhesions.	None.	Recov.
30	623	26	0	Retroversion. Disease of left tube and ovary.	Left tube and ovary removed.	Recov.
31	626	50	2	Retroversion.	None.	Recov.



TABLE OF CASES OF SHORTENING OF THE LIGAMENTS—CONTINUED.

No.	Case No.	Age.	No. Ch.	Indications.	Other Operations.	Result.
32	645	35	1	Retroversion.	Trachelorrhaphy and curettement.	Recov.
33	648	27	0	Retroversion. Both ovaries enlarged and prolapsed.	Cysts removed from each ovary.	Recov.
34	652	22	1	Retroflexion with salpingitis upon the right side. Adhesions. Prolapse of both ovaries.	Right tube and ovary removed. Retractors uteri shortened.	Recov.
35	653	39	0	Retroversion. Ovarian tumor.	Removal of a large multilocular ovarian cyst.	Recov.
36	656	27	1	Retroversion with adhesions. Salpingitis.	Both tubes and ovaries removed. Also appendix.	Recov.
37	660	46	7	Retroversion; prolapsed and enlarged ovaries. Salpingitis.	Both tubes and ovaries removed.	Recov.
38	665	29	0	Retroflexion; prolapsed appendages with adhesions.	Right tube and ovary removed.	Recov.
39	668	36	4	Retroversion; adhesions; small par-ovarian cyst.	Right tube and ovary removed with cyst; also perineum repaired.	Recov.
40	672	30	3	Retroversion. Salpingitis. Adhesions.	Trachelorrhaphy. Right tube and ovary and part of left ovary removed.	Recov.
41	678	50	7	Retroversion with adhesions.	None.	Recov.
42	684	18	0	Retroversion; prolapsed and enlarged ovaries.	Removed a cyst from the right ovary.	Recov.
43	688	45	2	Large ovarian tumor.	Tumor removed.	Recov.
44	691	30	0	Retroversion with salpingitis.	Tubes and ovaries removed.	Recov.
45	695	36	0	Retroversion. Prolapsed left ovary. Adhesions.	Left tube and ovary removed.	Recov.
46	699	40	1	Retroversion, salpingitis and adhesions.	Tubes and ovaries, except half of the left ovary removed.	Recov.
47	704	51	3	Retroversion, enlarged uterus and adhesions.	Removed small fibroid from the anterior wall of the uterus.	Recov.
48	707	26	0	Retroversion and adhesions.	Removed left ovary and tube and part of right ovary.	Recov.
49	723	34	0	Retroversion with adhesions.	Left ovary removed.	Recov.
50	735	42	1	Retroversion.	Cyst removed from left ovary.	Recov.

TABLE OF CASES OF SHORTENING OF THE LIGAMENTS—CONCLUDED.

No.	Case No.	Age.	No. Ch.	Indications.	Other Operations.	Result.
51	741	38	0	Retroversion, very extensive adhesions.	Opening made through the vagina, but the adhesions could not be broken. Died of obstruction of bowels.	Died.
52	742	54	0	Retroflexion; ovarian cyst.	Cyst removed.	Recov.
53	747	39	0	Retroversion; fibroid of uterus; salpingitis.	Removal of fibroid and pus tubes.	Recov.
54	754	21	0	Retroflexion.	Alexander's operation had been previously performed; ligament broke.	Recov.
55	760	26	0	Retroflexion with adhesions.	None.	Recov.
56	775	46	5	Retroversion. Small cystic tumor of ovary.	Removal of cyst.	Recov.
57	778	45	0	Retroversion. Cyst of broad ligament.	Cyst enucleated.	Recov.
58	781	25	0	Retroversion.	Right ovary removed.	Recov.
59	787		0	Retroversion and ovarian enlargement.	Right tube and ovary removed. Hematoma removed from left ovary.	Recov.
60	789		0	Retroversion and ovaritis.	Right tube and ovary removed. Sac removed from left tube and ovary.	Recov.
61	796		0	Retroversion; adhesions; salpingitis.	Right tube and ovary removed.	Recov.
62	801		0	Retroversion; cyst of broad ligament.	Right ovary and tube removed and part of left ovary and tube.	Recov.
63	811		0	Retroflexion; adhesions.	Tubes and ovaries removed.	Recov.
64	817		0	Retroflexion with adhesions.	None.	Recov.
65	911	25	0	Retroversion. Dense adhesions.	One tube and ovary removed.	Died.
66	967	38	4	Retroversion.	Left tube and ovary removed.	Recov.
67	986		0	Retroversion; adhesions.	Alexander's operation was begun; the ligaments could not be found. Abdomen opened at once.	Recov.

BUFFALO, N. Y.

## POST-OPERATIVE INSANITY, ESPECIALLY IN WOMEN.

W. P. MANTON, M.D.

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ALTHOUGH it had long been known that mental derangement sometimes follows in the wake of surgical operations, no especial attention had been directed to this subject, particularly as regards women, until the publication of Thomas' paper in 1889. In this article, 26 instances of acute mania, melancholia and hypochondriasis, the sequelæ of gynecological operations, were reported—6 of the cases having fallen under Thomas' personal observation, the remaining 20 being collected from various sources.

At that time post-operative mental alienation was believed to be of rare occurrence, but the collected experience of many observers during the past eight years has shown that, while not frequently met with, the condition is by no means uncommon, while the increasing literature of the subject—the latest article in this line contains a bibliography of no less than 66 distinct titles, and this does not by any means exhaust the list—has greatly augmented our knowledge of the etiology and course of the mental disorders resulting from surgical proce-

dures. The discussion of this condition, of course, properly falls within the domain of the mental specialist, but as the beginning of the attack occurs usually while the patient is still under the care of the surgeon or gynecologist, it will not be entirely foreign to our department in medicine if we devote a little time to its consideration.

I shall confine my remarks to a brief summary of the following points:

1. The class of cases in which post-operative insanity is most likely to develop.

2. The differentiation of this psychic disorder from insanity arising from other conditions.

3. Its frequency.

1. While it is claimed by some that psychic disturbance is as likely to develop in mentally sound individuals as in those who possess a latent defect, a study of the subject leads me to believe that in nearly every instance careful investigation will discover some acquired tendency or hereditary taint which predisposes to the mental

unbalancing. In such instances, it can be readily understood, the mental impression of an operation, which, as pointed out by Dent (1), may arise by anticipation, by the actual operation, or by its after-effects, engrafted upon an unstable mental organization may so disturb the equilibrium of the mind as to give rise to confusion and chaos. The actual shock of the operation added to the previous mental strain of anticipation, the lowering of the vital energies through loss of blood, or the entrance into the economy of specific poisons—septic material, carbolic acid, iodoform, cocaine and the like—must surely act more profoundly on the central and peripheral nervous systems of the tainted individual than on one who is physiologically sound. It would also seem most reasonable to suppose that the more delicate and susceptible nervous organization of woman and her greater tendency to neurotic disorders would render her more liable to mental derangement following operations than the opposite sex, and we are, therefore, not surprised to find that the greater number of cases of this kind reported have occurred among females. Simpson (2) states that “if gynecological work be excluded, the preponderance of the female sex as sufferers in this direction disappears.” I have no statistics of general surgery at hand, but from my experience in hospital and general work I should say that general surgery on the female is very much less frequently

carried out than on the male, so that I cannot see why, in attempting to determine the etiology and frequency of post-operative insanity, gynecological operations should be excluded.

It must not be overlooked or forgotten in the discussion of this subject that in some cases of insanity following operations the surgery has nothing whatever to do in the production of the mental symptoms. For, as Clevenger remarks, traumatism may precede insanity and still have no relation to the insanity. In not a few cases recorded as post-operative, the mental symptoms have not manifested themselves for so long a period subsequent to the surgical act that it is only by a stretch of the imagination that the two can be connected as cause and effect.

It may, therefore, be put down as a rule that post-operative insanity is most likely to develop in those subjects who have a bad personal history or are handicapped by heredity, and the operator should proceed with the utmost caution in his treatment of this class of cases.

2. As regards the second point under discussion, it may be stated at the outset that without a previous knowledge of the determining moment no one would be able to distinguish, from the symptomatology, post-operative insanity from the insanities arising from other causes.

Vene (3) gives the average time of the onset of the attack as the second



to the fifth day, but it may appear suddenly immediately following the operation or develop slowly so that several weeks may elapse before the mental symptoms become serious. Sears found that the type assumed by this class of cases was, in 186 instances, of the acute confusional variety, but a perusal of the literature shows that in a large percentage of cases the form is the acute maniacal or melancholic.

Most of these post-operative cases run a rapid course and the tendency is to recovery; a few die, and probably fewer still terminate in a chronic condition.

3. From the records of 5,500 surgical cases treated in the wards of Annandale of the Edinburgh Royal Infirmary, Simpson (4) found 10 cases of mental derangement which could be ascribed to operative causes. Homans saw two cases following 1,000 abdominal section for various conditions. These figures probably represent fairly accurately the proportion of post-operative among all the insanities. On account of the fact that most of these cases of post-operative insanity either recover or die within a comparatively short period after the onset of the symptoms, few becoming chronic, asylum statistics furnish comparatively little information regarding the condition. I have been at some pains to examine the records of the Eastern Michigan Asylum, and find that in about two thousand patients, whose histories I have looked

over, in only two cases, both females, is the cause of the mental trouble ascribed to operative influence.

The histories of these cases are as follows:

1. H., widow aged 62, mother of two children. Has an insane second cousin. Patient has always been frail and delicate. Following her last labor suffered from uterine prolapse for the relief of which she has worn a pessary and abdominal supporter. Five months before admission to the asylum she underwent an operation for mammary cancer of the right side. Very soon afterward mental symptoms developed which finally led to her transfer to the institution. On admission she was found to be suffering from *agitated melancholia*. The distressing symptoms continued for several years, but towards the end of life were somewhat ameliorated. She died five years from date of admission.

2. F., married, aged 32, mother of five children. Has an insane brother. During the spring previous to admission, patient had a miscarriage and was sick or ailing all of the following summer. Late in the fall she was operated on for laceration of the cervix and perineum. Mental symptoms developed two weeks later, and after two months of home treatment she entered the asylum, suffering from *agitated melancholia*. She was then restless, sleepless, moaning, crying and apprehensive. She feared personal injury or another operation, and fancied that the uterus had been

removed and the bowels sewed together. She was also suicidal, and later became destructive of furniture and clothing. Her physical condition has slowly improved; she sleeps better, and there are days during which she is comparatively comfortable, but she has little appreciation of her condition and the mental symptoms continue unimproved.

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#### DISCUSSION.

DR. J. H. CARSTENS.—As far as I am concerned I have made up my mind long ago, that there is no such thing as a post-operative insanity. It is simply a coincident, and insanity would follow without operation. There are many cases on whom we operate who are already wholly or partially insane, and it is wonderful with what tenacity people cling to the idea that whatever trouble they have is the cause of their neurotic condition. This is the case with the relatives, even more than with the patient. If a woman has some trouble of the sexual organs and insanity appears, they at once conclude that the former is the cause of the trouble, and they try

to have some operation done to relieve it. We have all at some time promised more than we ought to in the way of prognosis, and as a result have often caused disappointment. These patients often seem to improve for a time after the operation, but they soon relapse and go from bad to worse, and I hold that those who become insane after operation would have eventually become so if they had been let alone. I have operated on patients partially insane and some raving, and I must say I could not see any benefit follow, beyond a mere temporary one. I operated on a girl with menstrual insanity who tried to shoot somebody. She was all right for a couple of months afterwards, and then at her menstrual period she relapsed and is today in Kalamazoo. I cannot remember a single case of post-operative insanity in my practice except in those cases who were insane before or on the verge of it. We ought to be very guarded in our prognosis and the amount of relief we promise. There is no doubt that operation does relieve some cases where there are reflex symptoms, and I have no doubt that in some cases operations prevent insanity, but I do not believe they cause it.

DR. TAPPEY.—The only case I recall that bears on this subject was that of a boy run over by the cars, necessitating the amputation of a leg. He developed nervous symptoms that might be called insanity, but I did not at the time feel sure they had any-

thing to do with the operation. There was some suppuration of the flap due to the bruising and the wound did not heal readily. He was in a very nervous and excitable condition at times, but there was a distinct history of exalted nervous condition on both his father's and mother's side. It was very plain to be seen that they had exercised no control over the boy. When I entered the room he would scream and continue until I left and for some time afterwards, so much so that he had to be removed to the top floor of Harper Hospital. As I have said, although this case seemed almost like insanity, still I am inclined to think it was rather the lack of control of an excitable nervous temperament which he had inherited and that the accident and operation only furnished occasion for its exhibition.

DR. MANTON.—It is unquestionably true that cases of insanity, other than surgical delirium, do occur as the result of surgical operations. These may be due simply to the shock of the operation, or to septic infection. I think it was Baldy who wrote a paper several years ago on this subject in which he claimed that in a certain number of his cases he was unable to trace any insanity or neurotic hereditary tendency. From my own experience and study of this class of cases, I am led to believe that careful investigation will always show some hereditary taint, perhaps remote, or the patient will be found to have acquired a tendency to nervous or men-

tal disorder, as the result of intemperance or excess in some other direction. Many males break down mentally from sexual excess, and taking such a physical or nervous condition *plus* a traumatism it is not difficult to understand a resulting insanity. I should say in regard to the case mentioned by Dr. Tappey that it was one of surgical delirium rather than one of insanity proper. In regard to the conditions referred to by Dr. Carstens, when a person is insane and we operate on her and the insanity is thereby augmented, we can hardly call such an instance one of post-operative insanity. I have had the privilege of operating on a large number of insane women and I cannot recall that I have ever experienced anything of this kind. I have never seen insane patients grow worse as the result of an operation, but I have seen them become very much more comfortable mentally. I have never that I can remember seen a chronic case of insanity cured by operative interference. I think, however, that in many cases where the mental trouble appears to be due to some disorder of menstruation, or to disease of the local organs, we may get restoration of the mental faculties by removing the sources of irritation. I must be understood as referring to acute cases. Recent puerperal cases, in my experience, offer the best chances for a successful outcome. In a number of these patients the rest and quiet of asylum life, proper feeding, regular habits, gen-

eral tonic treatment, *plus* the removal of all sources of irritation by surgery or otherwise, has led to the desired re-

sults, the attainment of mental integrity.

## CATHETERIZATION OF THE URETERS (FEMALE) AS A DIAGNOSTIC MEASURE.\*

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THE routine use of the ureteral catheter and bougie in surgical diseases of the kidney and ureter is of the greatest aid to the surgeon in enabling him to arrive at an accurate diagnosis. With the catheter can be obtained urine from either kidney free from any vesical contamination. Examination of this will, in a great many cases, reveal positively the character and location of the affection, be it a pyelitis, single or bilateral, a renal hæmaturia, a soft rapidly growing neoplasm, a hydronephrosis from calculus or stricture, etc. Further, if the catheters be allowed to remain in the ureters for a known time and the urine be collected, you can estimate the quantity excreted by either kidney in twenty-four hours,—a point of paramount importance when the question of nephrectomy arises.

Catheterization of the ureter was first accomplished by Simon in 1875. He incised the external meatus, and

dilated the urethra to such a degree that the index finger could be introduced within the bladder. With the finger as a guide a catheter was passed into the ureter. Two years later, Grünfield by the aid of his endoscope and a strongly reflected light, was able to bring the ureteral orifice into view, and to pass alongside of the endoscope a catheter into the ureter. In 1883, Newman (1) in a similar manner catheterized the ureter, using for illumination a small electric light introduced into the bladder. He also in his work, "Surgical Diseases of the Kidney" (being his course of post-graduate lectures delivered in Glasgow, 1886), published in 1888, figures and describes an instrument consisting of a metal tube or holder and a small gum-elastic catheter, with which he succeeded in catheterizing the ureters with only the index and middle fingers in the vagina as a guide.

Pawlik (2), in 1887, described the ureteral folds which bound a tri-

\* Read at meeting of Wisconsin State Medical Society, May 6, 1897.



angular space in the anterior wall of the vagina corresponding to the trigone of the bladder. The posterior border of this triangle corresponds to the inter-ureteric ligament at either end of which are situated the openings of the ureters. To practice this method the patient is placed in the genu-pectoral or lithotomy position (with the hips well elevated); the bladder distended with an antiseptic fluid, and a large Sims speculum introduced into the vagina so as to fully distend the anterior vaginal wall. The ureteral catheter is introduced and its beak depressed so as to make a prominence on the anterior vaginal wall. By watching the changing position of this prominence, the location of the tip of the catheter is known. The tip of the catheter is made to follow the boundaries of the vaginal triangle by moving from within outward and from behind forward towards the orifice of the ureter until the angle of the vaginal triangle is reached; then by gliding and rotatory movements combined with elevation and depression, the catheter will enter the ureteral opening. As the catheter enters the ureter a sensation of diminished resistance is experienced, and the downward and lateral movements of the catheter are restricted. Kelly (3) in practicing this method distended the bladder with a methyl-blue solution in order to avoid any possible error; if clear fluid came through the catheter, it must come from the ureter.

Of these, the latter is the only one that has been put into practice to any extent. It is difficult of execution, and even in the hands of an expert liable to failure. It remained for Kelly in 1893 to work out a simple and practical method,—“Catheterization of the Ureters under Direct Inspection” (4 and 5). It is to this that I would direct attention, and add two selected and illustrative cases.

The essential features of Kelly's method are rapid dilatation of the urethra, distension of the bladder by air and its illumination by reflected light through a straight speculum, the bringing of the ureteral orifice into the field of view, and the introduction of the catheter.

To effect this rapid dilatation of the urethra he uses dilators made of metal, S-shaped, with conical points, and ranging in diameter from 5 to 20 m.m. To ascertain the calibre of the external meatus, a calibrator consisting of metal cone graduated in millimeters is inserted into the urethra as far as it will go. The diameter is noted and dilatation commenced by introducing the dilator of the corresponding size. Gradually and slowly ascending the scale, the average female urethra can be dilated up to twelve millimeters with none or at most a very slight rupture of the external meatus. Dilatation can be carried still further without danger, but this will suffice for catheterization. Dilatation effected, the next step is illumination of the interior of the blad-

der. For this are required an ordinary head mirror and a good light in addition to the speculum. The specula are straight and cylindrical 9.5 c.m. ( $3\frac{3}{4}$  in.) in length, and correspond in diameter to the dilators. Both are numbered alike. Into the speculum fits an obturator which is conical in shape. It closes the vesical end and facilitates introduction. Withdrawing the obturator, the light is reflected from the head mirror into the bladder, and the search for the ureteral orifice begins. To aid in this it is well to mark the speculum as Kelly directs: A point is marked on the cystoscope 5.5 c.m. ( $2\frac{1}{8}$  in.) from the vesical end, and from this point two diverging lines are drawn toward the handle with an angle of sixty degrees between them. The speculum is introduced up to the point of the V, and turned to the right or left until one side of the V is vertical and in a line with the axis of the body; then by elevating the endoscope until it touches the floor of the bladder, the ureteral orifice will usually be found within the area covered by the orifice of the speculum. The searcher now comes into use. This is a delicate probe 18 c.m. (7 in.) in length, one extremity of which is bulbous, and to the other is fixed a handle at an angle of  $120^{\circ}$ . With this instrument any suspected ureteral opening that may lie within the lumen of the speculum is explored. If it be that of the ureter, the searcher slips easily into the ureter for a short distance, and the

surrounding mucous membrane is elevated on its tip. Satisfied that the ureteral orifice has been found, withdraw the searcher and introduce the catheter.

Catheters are either stiff or flexible; the former are of metal 30 c.m. (12 in.) in length, with a handle that can pass through a No. 10 speculum, straight except at the ureteral end, which is slightly curved, perforated with three or four openings in the concave side, and with conical point. After introducing this catheter 2 or 3 c.m. it is necessary to withdraw the speculum so that the catheter can be directed more towards the pelvic wall. The flexible catheters are either ureteral or renal, according as they were intended for the ureter or the pelvis of the kidney, the only difference being in their length; the former are 30 c.m. (12 in.) long, and the latter 50 c.m. (20 in.). They vary from 1 to  $2\frac{1}{2}$  m.m. in diameter, have a conical tip and a large eye. If kept cool they are generally stiff enough for easy introduction; otherwise a thin wire may be used as a stilette, the end of which should be held by an assistant while the catheter is stripped off and pushed into the ureter. The hard rubber bougies for the diagnosis of stone in the pelvis of the kidney or ureter are of the same size as the catheters, with an olive tip grooved lengthwise. The end of the bougie is coated evenly with dentist's wax until it has a smooth glossy appearance. This will not be changed by contact

with any of the soft tissues but will be readily scratched by a stone. Other requisites are a long slender mouse-toothed forceps, 24 c.m. ( $9\frac{1}{2}$  in.) long, by means of which small pledgets of cotton can be passed through the speculum to absorb any urine that may obstruct the view; a small bulb syringe with rubber tube attached to remove the urine remaining in the bladder after voluntary micturition or catheterization; an ordinary exhausting syringe that can be attached to the catheters by rubber tubing in case they become blocked or the contents of the renal pelvis and ureter are of too great a consistency to pass through such small tubes; and two test tubes, marked right and left, inserted into a wooden block for the collection of urine as it flows from the catheters. For general work dilators ranging from No. 7 to 16 and specula No. 8, 10, 12, 14 and 16, with the other accessories, are all that are required.

Shoemaker (9), for the removal of the urine which collects in the lumen of the speculum and obstructs the view, suggests that instead of using cotton to mop it up, one of two devices may be employed. Either the use of a urethral catheter with an opening in the end instead of at the side, the outer end of which is connected with an exhausting bottle; or a small metal tube placed lengthwise in the lumen of the speculum and attached to it, the outer end of which is attached by tubing to an exhausting

bottle. By keeping up a continuous exhaustion, any fluid that gets within the speculum is drawn immediately into the bottle, and thus the field of view is kept clear without necessitating the withdrawal of the searcher or catheter. He further suggests the attachment of a fenestrated handle at an angle of thirty degrees to the conical end of the speculum. This guards against the handle of the speculum coming into contact with the body in any position, and also serves as a guide to the proper lateral deviation of the speculum in searching for the ureteral orifice.

In its practical application and in the hands of an expert, it is considered unnecessary to administer a general anæsthetic unless the urethra is to be dilated beyond 10 m.m. The insertion into the urethra of a pledget of cotton saturated with a five per cent solution of cocaine for five minutes, will suffice. Ordinarily for the first examination a general anæsthetic is advisable. It is hardly necessary to add that strict antisepsis must be observed.

With the patient anæsthetised and placed in the dorsal position, the meatus is disinfected and the bladder emptied by a catheter. Preserve this urine for comparison with a mixture of the urine as obtained from the kidneys. Wash out the bladder. The patient's hips are next elevated from twelve to sixteen inches on cushions; the object of this is to remove the weight of the superineumbent ab-

dominal contents, and allow the bladder to become distended with air after removal of the obturator. This distension obliterates the mucous folds of the bladder, which in a contracted condition would conceal the openings of the ureters. The urethra is dilated to the requisite degree and the speculum introduced. On withdrawing the obturator, air enters through the speculum and the bladder balloons up. Light is now directed from the head mirror into the interior of the bladder, and as the speculum is moved around, a general survey of the bladder can be made. The residual fluid which always remains after catheterization can be seen at the lowest point, the posterior and upper portion of the bladder, and is to be removed by the suction apparatus. Any that still remains can be mopped up with pledgets of cotton in mouse-toothed forceps. The speculum is introduced from five and a half to six centimeters, up to the apex of the V, as already described. Elevating the outer end, the vesical end passes towards the base of the bladder where the inter-ureteric ligament can sometimes be recognized as a distinct ridge; then incline the speculum thirty degrees (until the limb of V is vertical), either to the right or left according to ureter desired, and the opening will ordinarily be found within the area exposed to view through the speculum. This area should be mopped off with cotton and boracic acid solution, so as to avoid

infecting a sound ureter from an infected bladder, and careful search made for the orifice of the ureter. This varies in appearance. It may appear as a dimple or slight depression, a slit-like opening, a small papilla, or a V-shaped opening, the angle of the V being directed outwards. It is always well to inspect this area closely for a half minute or thereabouts, even although nothing resembling an opening can be seen, because the urine flows from the ureter intermittently. A few drops of urine suddenly appearing shows that the opening is within the lumen of the speculum. The area surrounding the ureteral opening is by comparison of a deeper rose color. This is more marked in case of ureteritis, when the orifice may appear as if situated on the apex of a cone from the thickened and œdematous condition of the vesical mucous membrane. The searcher determines the location of the orifice, after which the catheter is introduced. It takes from three to five minutes for the urine to escape from the catheter, as it only flows from the pelvis at intermissions of from ten to thirty seconds, and the lumen of the catheter has to be filled. If after the lapse of five minutes no urine escapes, attach the exhausting syringe to ascertain if there be present any fluid such as pus, too thick to flow through the catheter. Obtaining none, introduce the catheter still further, carefully avoiding any undue force, gently withdrawing a short distance and again pushing on-



wards, noting any evidence of obstruction. Failing to withdraw any fluid, there is present either some obstruction within the ureter or without from pressure.

The metallic catheters are the easier of introduction, but their use is not free from risk of injuring the coats of the ureter. They must be used in the gentlest possible manner. The soft are preferable and unless it be in overcoming obstructions within the ureter, such as stricture, they are equally serviceable. When kept in cold, sterilized water they are rendered sufficiently rigid for easy introduction; otherwise a wire stylet may be used. Should they double up in the speculum, they can be caught near the ureteral end by the mouse-toothed forceps and pushed forwards. As the ureters are from 25 to 30 c.m. (8 to 10 in.) in length, it is necessary to introduce the renal catheter for that distance to reach the pelvis. Practically this means that from 13 to 17 c.m. (5 to 6½ in.) of the catheter projects beyond the external meatus. When the catheter has been introduced so far, resistance will be experienced, and the surgeon then knows that the pelvis has been reached. With the catheter in position, the speculum is withdrawn and re-introduced with this catheter lying alongside of it. The procedure is repeated and the other ureter catheterized. Both catheters are marked so as to distinguish which is right and which is left, the speculum withdrawn, and the ends of

the catheters placed in their respective test tubes. In the withdrawal and re-introduction of the speculum for the catheterizing of the second ureter, care must be observed not to disturb the first catheter either by pushing it into the bladder and kinking, or by withdrawing it from the ureter. The catheters are left in position for a definite time, then removed and the urine in the catheters added to that in the test tubes. The activity of either organ is thus compared, and by adding both together, and multiplying this quantity by the figure necessary to bring the time recorded up to twenty-four hours, we obtain the total amount for that time. It is from the chemical and microscopical examinations of those specimens, and the facts ascertained during the introduction of the catheters as to resistance or otherwise, that our conclusions are to be drawn.

When local anæsthesia only is employed, the patient may be placed in the genu-pectoral position, and a greater distension of the bladder be obtained. It is not so easy to introduce the catheter because the inter-ureteric ligament comes well forward, and its outer extremities conceal the ureteral openings. One advantage of this position as pointed out by Kelly is that the urine as it escapes from the ureter can be made to flow into the speculum, thus avoiding the necessity of catheterization.

CASE I.—A married lady, 23 years of age, of good family history, and no

sickness with the exception of typhoid fever some years ago, came under observation November 30, 1895. She stated that after her confinement in April, 1894, she was unable to urinate voluntarily, and that the catheter was used on several occasions. Subsequently a cystitis developed which subsided in a few weeks, and she considered herself well until six months later, when pain and frequency of micturition returned. She is unable to state whether pus was present or not during the first attack, but it became visibly evident soon after the second. The amount of pus has steadily increased in spite of internal medication given for its cure during the past year. The patient at the present time is anæmic, somewhat emaciated, and urinates hourly. Examination shows that urine is alkaline and contains a large quantity of pus and epithelial débris. The cystitis was treated by irrigation, at first once daily, then twice, and finally three times. Towards the end of March, *i. e.*, four months later, the urine would at times be almost free from pus, and then without pain there would be a sudden increase. This first directed attention to the kidneys. She states that there has never at any time been any pain in the renal regions nor along the ureters. On palpation only the lower end of the right kidney could be felt, and pressure caused no pain. The left could not be reached. Bi-manual examination of ureters *per vaginam* showed the right large as compared

with the left, and somewhat tender. Compression of right ureter induced a desire to urinate. On April 20, 1896, the ureters were catheterized, the catheters reaching the pelvis. The urine obtained from the right kidney was one-third less in quantity than from the left, very pale, alkaline, contained pus and 1-10 per cent urea. That from left was pale amber-colored, acid, contained a few blood corpuscles, probably from trauma to the ureter, and 3 per cent of urea. The mucous membrane of the bladder was acutely inflamed, appeared thickened and œdematous, and bled on the gentlest touch. From this a diagnosis of right-sided pyelitis in addition to a cystitis was arrived at and nephrotomy advised. The patient submitted to operation April 28, 1896, when nephrectomy was found to be necessary on account of multiple abscess about the size of a hazelnut throughout the substance of the kidney in addition to the pyelitis.

CASE II.—Mrs. P., 31 years of age, gives the following history: She has had scarlet fever, diphtheria, measles and parotiditis, without any history of nephritic complications. Ten years ago she was married, and during her married life she has had seven miscarriages under three months (no specific history obtainable). Soon after her marriage she began to have pain radiating from the region of the right kidney to the bladder, accompanied by nausea and variation in the quantity of urine. Four years ago she her-

self detected an enlargement or swelling under the right costal arch at times, and thought it was a rupture. One year later her first attack of cystitis developed. This recurred at intervals of three or four months. The last began in September, eight months ago and still persists. During all this time there has been more or less uneasiness and pain in the right side. She came under observation March 22, 1897. She is well nourished, of a neurotic temperament, complains of great pain under the right costal arch, and frequent desire to urinate. Palpation reveals a movable kidney, enlarged and very tender to the touch. Compression induces nausea and causes the pain to radiate to the bladder. Temperature ranges from normal in the morning to 100° Fahr. in the evening. Examination of urine shows that it is slightly acid, contains a trace of albumen, pus, and a variety of epithelial cells, small and large. The quantity varies from eleven to twenty-four ounces in twenty-four hours. This variation in quantity bears some relation to the pain, it being diminished when discharge is free, and increased when scanty. On March 31, 1897, the ureters were catheterized. The catheters passed freely and easily to either pelvis. The excretion from the kidneys was equal as to quantity; microscopic and chemical examination shows both specimens normal. There was no pus. The bladder walls were injected and ureteral orifices appeared normal.

Comparing those two cases from a diagnostic standpoint, the first had all the symptoms and history of a catheter cystitis until late, and then the only indication that the infection had extended beyond the bladder, in addition to an increase of the pus in the urine at intervals, was a tender and thickened condition of the ureter. Palpation revealed nothing; the lower end of the right kidney could be felt but not the left. Microscopically the urine showed an aggravated form of cystitis. There had at no time been any local treatment, only internal medication. In the second case there was a movable kidney, probably aggravated by the constant and severe vomiting always present when she was pregnant, so that for four years the patient herself knew of its presence, although not its character. Later a cystitis developed, marked by pain and frequent micturition, a symptom often present in renal affections. The recurrence of this at intervals rather indicated a renal origin, as was to be inferred from her condition when she came under observation and the history of lumbar pain and uneasiness for the past few months. The first case had all the symptoms of a cystitis, and the second that of a pyelitis. The reverse was, however, the case. For the second a nephrotomy and kidney fixation was under consideration and had been accepted by the patient.

The first case shows the advisability of an early resort to catheterization of the ureters in obstinate or

long-standing cases of cystitis. Had it been done in this case when the patient first came under observation, I believe that then a similar condition of affairs would have been discovered as was found later.

These cases are good illustrations of the difficulties encountered in the diagnosis of the renal surgical affections, and the diagnostic aid to be derived from catheterization of the ureters.

With reference to other affections, Kelly (9) has recorded three cases in which he has been able to diagnose renal calculus by obtaining from the pelvis with the exhausting syringe, in one uric acid crystals, and in two minute fragments of the calculus. In one of the latter he detected by a magnifying-glass scratches on the smooth surface of the catheter, which could only have been produced by a rough body. If a calculus be impacted in the ureter, the wax-tipped bougie will reveal its present by the impression made thereon, and will render exploratory celiotomy unnecessary to reveal its location. Surgeons must never forget that in renal affections the symptoms may be referred to the healthy kidney as in Twynam's (8) case, where the pain of renal colic was referred to the left side and diagnostic celiotomy showed that the calculus was impacted in the right. In

new growths, destruction of the kidney from microbial infection or atrophy from obstruction of the ureter, the functional activity of the other kidney will decide for or against nephrectomy.

In conclusion, catheterization of the ureters in the female is a simple and practical procedure; it should always be resorted to before undertaking any surgical operation on the kidney, and it renders exploratory celiotomy and nephrectomy for diagnostic purposes unnecessary.

Milwaukee, Wis.

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## MEMBRANOUS COLITIS IN ITS RELATION TO PELVIC DISEASE IN WOMEN.\*

HUGO O. PANTZER, M.D.

THE existence and significance of sigmoidal catarrh was brought to my notice first about ten years ago by our esteemed fellow, Dr. George J. Cook, in a paper presented to this society. The disease was pointed out as a rather rare and obscure affection of the bowel, which had until then received little recognition in medical literature and practice, still, was productive of serious nervous and trophic disturbances.

Since, I have found the disease remarkably often associated with female genital affections. As a result of my observations, I regard, firstly, that this form of colitis, as associated with genital disease, is a potent factor in the production of the symptoms in such cases; secondly, that in these cases the intestinal disease is commonly a consequence of the genital disease; thirdly, that the membranous colitis demands special consideration and treatment in a large per centum of the cases.

Where the intestinal disease is a sequela of recent date, and the constitutional condition and other influences are favorable, it may heal with-

out special therapy upon cure of the genital disease. Often, however, this does not follow. The intestinal affection has become inveterate, or complicated with disease in other organs, or with constitutional debility, which precludes spontaneous return to health.

Where the surgical cure of genital disease was not followed by relief, and the accompanying colitis goes unobserved and without treatment, the continuous ill health of the patient may cast an ominous cloud upon the judgment and skill of the operator, all the more because the patient refers her continued suffering to the pelvis, the old site of the disease. I am satisfied in my mind that many an imperfect result after pelvic surgery is owing alone to the presence of colitis.

General practitioners have sent me cases with the statement that their patient complained of "womb trouble" without such being apparent, or without present genital lesions adequate to explain the extensive illness, and in which various treatment had failed of result. Two cases are of special interest. The one had been in the hands of a most excellent and conscientious

\* Read before the Indiana State Medical Society at Terre Haute, May 20, 1897.

general practitioner. Upon failing to achieve any permanent good by his treatment, he, in turn, referred his patient to two gynecologists, an oculist, and a throat and nose specialist. The result was unsatisfactory, for the pelvic and constitutional symptoms persisted. Removal of the ovaries had been advised. I found an unusually aggravated form of sigmoidal colitis. The sigmoid, heavy with congestion, had drawn upon its mesentery until it no longer was suspended by it, but lay in the cul-de-sac of Douglas, a boggy mass, tender, like a boil. The second case, a young woman of 23 years, had suffered since puberty pelvic pain and tenderness, recurrent chloremia, constipation and general malaise, with few and short intermissions of health. She was treated by physicians in this country and in Germany, getting only temporary relief. Latterly, chronic colitis was found. From her history it may be assumed that chronic colitis was what caused the suffering all these years.

This condition is so frequently associated with diseases of the female genitalia as to constitute a need of its consideration and treatment in conjunction with gynecic diseases. The literature of this subject, at all, is small, and but a few papers treat of it in its association with female genital disease. Works on gynecology contain nothing about it. Ewald, in the "Twentieth Century Practice of Medicine," devotes three pages to the

consideration of this subject. Various names are proposed for this disease, namely mucino-membranous colitis, pseudo-membranous colitis or enterocolitis, muco-membranous colitis, proctitis, membranous proctitis or colitis. I prefer membranous colitis, or muco-membranous colitis.

*Symptomatology.*—The pathognomonic symptom of membranous colitis is the appearance in the stool, in recent cases, of a viscid, glairy mucus, at a later stage, of muco-membranous matter, tubular, ribbon-like or shreddy in form, and of a grayish-white color. It may be discharged in separate movement or with feces. At times there is a slight admixture of bright, red blood. In some cases, black grumous matter is found in the stool, at times in large quantity. Bowel movement is preceded by sickening, colicky pain of varying intensity. This occurs a short time before the discharge, or may precede it an hour or longer. The passage is often accompanied by cardiac disturbances, cold sweats and faintness, and is followed by soreness and bloating through the lower abdomen, and general malaise. Pus is very rarely present. Its presence, probably, denotes an inflammatory complication. Obstinate constipation is a common feature of these cases.

Some cases have loose, diarrhœic bowels. In almost all cases an occasional spurt of diarrhœa occurs, at times distinctly dysenteroid in char-

acter. Sometimes following these attacks there is a temporary remission of the intestinal symptoms, giving the semblance of a cure. The lower abdomen, or, even more definitely, the left inguinal region, is pointed out as the locality of pain and tenderness, and in some instances the distended and tender sigmoid can be distinctly palpated and seen. Pain radiates from this locality, into the loins, back, hips and limbs. In aggravated cases pain localized in the left hypochondrium is complained of. I rarely found the spleen enlarged or tender, and the pain is probably explained by the traction of the heavily congested sigmoid and descending colon upon the parts from which they are suspended. Occipital pain, the ordinary sacral reflex, is commonly present. Indigestion and its accompaniment of anorexia, flatulency, biliousness and general glandular inactivity, and later, emaciation and lassitude, often combined with great irritableness of temper, are probably owing to the absorption of toxins from the bowel. Ultimately, multiform neurasthenia is developed. In turn the neurasthenia fortifies the primary intestinal and pelvic disease. Thus there is established a *circulus vitiosus*, which makes the affection a most intractable disease.

I may be spared here the detailed enumeration of the symptoms attending upon neurasthenia and defective nutritive and excretory function. All symptoms in the domain of pathology

may be present at one time and ease or another. The body temperature is less constant than in health. Frequently one-half to one degree above or below normal are registered. The menstrual period, with its pelvic hyperemia and exacerbation of the genital disease often marks an increase of the bowel symptoms. This, no doubt, has often been erroneously construed to argue for the genital origin only of the symptoms. The menstrual period often develops looseness of bowels and dysenteroid attacks. The liver is nearly always enlarged and tender, like in malaria, for which, in my observation, the affection has often been mistaken.

The pathology and pathological anatomy of membranous colitis has not been satisfactorily determined. Bacteriological research has developed nothing definite. The *bacillus coli communis* has been etiologically connected with this disease by a few writers, though without valid reason, as yet. The ordinary pathogenic bacteria are rarely found in the discharges, and when present must be regarded as owing to a complication. Their absence, too, probably accounts for the common absence of pus in the discharges, and goes to mark the disease as non-inflammatory in the common sense of the word. It is significant that Ewald and a few other writers class the disease with the secretory neurosis of the intestine. The anatomical observations made are few. O. Rothmann and C. Ruge examined a

single case. Ewald\* quotes them as follows: "In the case described as membranous enteritis, the mucosa of the transverse and descending colon and of the rectum was injected and swollen and covered at various points with membranous or stringy masses of mucus, which filled the spaces between the folds, and projected into the lumen. They could be pulled off without loss of substance, but they penetrated so deeply into the mucous membranes as to displace completely its epithelial investment at the more markedly injected spots. It is obvious that even this very slight alteration of the mucosa cannot be traced to a genuine inflammatory process, but represents a secondary product."

It may be accepted that chronic and aggravated cases show more extensive destructive changes, including atrophy of the mucosa and contraction of the submucous connective tissue. I have in mind a case where the entire great intestine, from sigmoid to cecum, could be traced, at all times, through the thin abdominal walls, as a hard, tender cord. The intestinal wall, it appeared, had thickened and contracted upon its lumen, almost annihilating the function of the bowel. From what we know of its pathology it may be said that membranous colitis does not present the common characteristics of a true inflammation. But to call the affection a neurosis, as has been done, seems not yet war-

ranted. The writer would rather accept that the conditions presented in membranous colitis are owing to saprophytic toxins. Saprophytes do exist in that part of the colon, whereas pathogenic microbes can hardly maintain existence there. Saprophytes cannot subsist upon or attack healthy tissue. The non-inflammatory character of the conditions found in these cases contra-indicates pathogenic activity. The extensive desquamation of epithelium is probably the destructive effect of the putrid toxins upon these cells, and the increased secretion of mucus may be ascribed to the irritant effect of the toxins upon the muciparous glands of the part. However, this is theory, and further investigation and knowledge here are needed.

*Etiology.*—The presence of colitis, in varying degree, can be demonstrated in almost every old case of fixed retroflexion, or left lateral displacement of the uterus; also in cases of impacted tumors of the pelvis. I have taken the opportunity to demonstrate this to my classes, or to physicians attending my operations. I find it frequently associated with inflammatory pelvic diseases, notably where the bowel becomes adherent, or in inflammatory thickening and contraction of the sacro-uterine ligaments. In both conditions the bowel movement is stayed. All of these cases have constipation as the first consequence of such disorders. Secondarily, the peculiar catarrhal conditions

\* Twentieth Century Practice of Medicine, Vol. IX. pp. 626, 267.



under consideration develop. It seems rational to argue, namely, that the feces stop and become dammed up above the point of compression or pain: the fecal accumulation is added to by the formation of gases from putrefactive changes; overdistention occasions trauma and atony of the bowel; fermentative toxins are developed; these exert a local effect upon the tissues, which is seen in the destructive epithelial changes, and in the irritative and morbid glandular activity of the bowel; then, too, the toxins are absorbed, and we note the effect of toxemia upon the nutritive, nervous and excretory functions.

While my observation is largely limited to cases associated with genital disease, I can make no general deductions. However, quite a few of the writers upon this subject have noted the precursory constipation, and have likewise associated it etiologically with the membranous colitis. The disease has been observed in all ages of both sexes. While oftenest associated with constipation as a precursory condition, in single instances other causes have been associated with membranous colitis. These need not be enumerated here.

*Diagnosis.*—The disease should be suspected in every case of chronic pelvic disease or chronic constipation. The characteristic stools are pathognomonic. Where pain regularly precedes bowel movement, the disease is almost invariably present. Quite commonly palpation, and even inspec-

tion of the abdomen, will show tenderness and distention of the sigmoid flexure. The disease is commonly limited to the sigmoid and rectum. At times it shows a progressive character, and, in time, involves the entire colon. Bimanual examination reveals the sigmoid as a tender, bloated organ, reaching across the lower abdomen, and at times dipping deeply into the pelvic cavity. Where the disease includes the entire colon, tenderness and bloating along its course can be made out. In rare, aggravated cases the bowel is contracted and cord-like, as in the case above mentioned. The introduction of a Wales bougie into the rectum will be attended by a sharp pain while the bougie passes over the diseased part. The rectal mucous membrane oftenest shows no changes. Only where the discharges are particularly acrid, and while dysenteroid symptoms obtain, is the rectum hyperemic and painful. No doubt many cases of recurrent dysentery are of this origin. Quite frequently the disease is mistaken for chronic malaria. The association with neurasthenia should be kept in mind.

*Prognosis.*—There is a consensus of opinion that the prognosis, as to cure, is bad, though the disease does not tend fatally. The afflicted may attain old age with it. One lady, whom I treated at one period of her disease, had the disease throughout the whole course of her sexual activity, keeping her weak and unfit to enjoy life. She had many acute exacer-

bations of dysenteroid character. The disease reached its acme during the climacteric period. She was finally taken east to a sanitarium. I learned that for a while she grew worse, her mind suffered, and acute attacks of prostration with coma occurred. Finally she recovered, and for the past three years she is enjoying a mental and physical vigor never before experienced in her life.

My personal experience is somewhat at variance with the grave prognosis given by nearly all writers. The disease is curable in one-half to three-fourths of the cases that I get to see. Some get well without special treatment, as soon as the pelvic disease causing it is cured. Some of these cures are too recent, perhaps, to speak upon their permanency. Some cases remain indomitable in spite of all treatment. Relapses follow temporary improvement. This is observed especially in cases complicated or attended with grave neurasthenia, and where the circumstances otherwise are bad.

*Treatment.*—The treatment of membranous colitis may be only briefly indicated here. Acting on the supposition that local disorders cause constipation, and that from the prolonged constipation the membranous colitis develops, the first indication for treatment is to remove the conditions which produce constipation. The resort to operative relief of genital conditions would be most emphatically indicated where mem-

branous colitis co-exists. Cathartics should be given with discrimination and sparingly. Irritating vegetable and chemical purgatives must be avoided. Castor oil, olive oil or phosphate of sodium may be chosen. Enemata, though always more or less irritating and attended by nervous weakness, cannot be avoided. They secure the most thorough removal of the muco-membranous matter. Bicarbonate of sodium, used with sterilized water, is a most serviceable enema. It is soothing, and it displays the discharges in clear water, which, for inspection, is of importance. Soap-suds cloud this reading of the case, and hence are less serviceable. Copious quantities of oil, olive or sweet almond, injected once or twice a week, have good purgative, and, at times, marvelous therapeutic effect. The local toxic and bacterial conditions are best met by antifermentative and bactericidal solutions. They are best directly introduced into the diseased part of the bowel by means of the rectal catheter. These injections are given after the bowel has been cleansed, as above, and the patient is kept in repose an hour or two afterward. An emulsion of sweet almond oil, iodoform and bismuth, nitrate of silver in weak solution, borated water, salicylic acid in aqueous solution, are favored remedies. I have recently employed permanganate of potash, ichthyol in 1 per cent aqueous solution and sodium salicylate, with gratifying effect. It is wise to change frequent-

ly the remedies employed, because the individual remedy wears out in effect when used for a long time. The toxemia and its deranging effect upon the stomach and the upper intestinal tract is met by such antiseptic and antifermentative remedies as phosphate or salicylate of sodium, benzoate of guaiacol, salol, resorcin or small doses of calomel. To remain effective and avoid chemico-toxic irritation, it is best to change frequently between them. The diet is of greatest importance, and must be easily assimilable, well cooked and creating least feces. All food that is cumbersome and constipating, or gritty, like the shells and seeds of cereals, should be avoided. Raw fruit seems often irritating.

Bodily exercise and standing are commonly harmful and should be minimized. In several cases I resorted to long rest in bed, in conjunction with other remedies, before I gained any purchase upon the disease. Measures tending to the consequences of the disease, such as neurasthenia and glandular disturbances, call for attentive and skilled consideration and treatment. They need not be especially mentioned here. However, it is well to bear in mind that depressing remedies, and especially opiates, are contra-indicated here, as elsewhere, in chronic diseases.

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## EDITORIAL.

### VAGINAL IRRIGATIONS.

THERE is without doubt much abuse made of vaginal irrigations which are used by women in good health. If, as is quite often the case, irrigations are used during the menses, they may be harmful if the temperature of the water is too low or too high.

Injectons employed after coitus are often the cause of sterility, and many women have become mothers after they ceased using their douche. Vaginal irrigations are most harmful when used by healthy pregnant women because they reduce the bactericidal power of the vaginal secretions, a fact that has been demonstrated by Kronig, Döderlein and others.

The only time when a vaginal irrigation should be ordered for cleanliness is when a female is wearing a pessary, as the instrument cannot be removed, cleaned and replaced every day. The water for irrigation in this case should have a temperature of from  $82^{\circ}$  to  $89^{\circ}$  and it is all important that no antiseptic should be added on account of the corrosive action on the pessary.

Irrigations of hot water at  $104^{\circ}$  to  $122^{\circ}$  act by the heat, which increases the circulation of the pelvic viscera.

At a temperature of from  $104^{\circ}$  to  $112^{\circ}$  they have vaso-dilating action, while at temperature of  $112^{\circ}$  to  $122^{\circ}$  they cause constriction of the vessels. The latter temperatures are indicated in certain forms of metritis, especially the *atrophic* type when due to a prolonged lactation or to early menopause in stout subjects. In these cases the hot vaginal douche will regulate the uterine functions and the menses.

Hot irrigations are of considerable value in chronic metritis, with a hard uterus, due to venous stasis and by their use the symptoms disappear, menstruation becomes more abundant and the mucosa takes on its normal rose color. In metritis of puerperal sub-involution they cause a retraction of the enlarged organ as well as a mucous transformation of the bloody lochia.

In the above mentioned conditions it is often well to increase the effect of the irrigation by the addition of slightly irritating substances, such as the chloride or carbonate of sodium, but what is still better is a teaspoonful or two of the plain tincture of iodine to every quart of water. But under no circumstances should we use antiseptic substances properly speak-



ing, because they cause changes to occur in the epithelium and bring about absorption by the mucosa, whose power of absorbing is greatly increased by heat.

Hot injections of  $112^{\circ}$  to  $122^{\circ}$  act remarkably well in cases of chronic peri-uterine inflammation as well as in peri- and para-uterine exudations. Combined with rest, these exudations may become absorbed and many cases are cured that at first might have appeared to be only suitable for surgical interference. In such conditions the irrigations must be used in large quantities, at least two quarts morning and night. If the patient is not sick enough to be confined to bed, she should be instructed to remain on a sofa for two hours after each injection.

It sometimes happens that the irrigation will make the pain worse, a fact which indicates that there is a recent, non-encapsulated pelvic exudation, often containing very virulent bacteria, and if this is present the irrigations must be immediately stopped for a certain lapse of time. The same applies when the pain increases in cases of pelvic abscess or para- or peri-uterine origin with an acute or febrile evolution.

The astringent properties of hot irrigations are also employed in uterine hemorrhage or in metrorrhagia symptomatic of endometritis, adnexitis, fibroid tumor, etc. The effect of the irrigation may be enhanced by the addition of tannic acid, a tablespoonful for

each quart of water. Of course, the irrigation is only a symptomatic treatment, and in order to obtain a cure the surgeon must direct his efforts to the lesion giving rise to the loss of blood.

Medicated irrigations are employed in cases of simple or muco-purulent catarrhal vaginitis and the nature of the substance employed will vary with the type of the disease. Dry vaginitis, so often met with in stout females, old maids and occasionally during pregnancy is characterized by a discharge simply containing *débris* of whitish color and which are simply made up of epithelium and bacteria. This form of vaginitis will be quickly dispelled by the use of alkaline irrigations, for example, a soup-spoonful of bicarbonate of soda to a quart of water. It is quite possible that this irrigation takes effect by neutralizing the too great acidity of the vaginal secretions which exists in these cases, and it is in just this form of vaginitis that alum is so frequently prescribed when in reality it is decidedly contra-indicated.

Non-gonorrhœal muco-purulent catarrhal vaginitis, which is principally met with in elderly women and young children, is well treated by irrigations of water to which a table-spoonful of wood vinegar has been added. When aphthæ are present, injections of a 1 per cent solution of lysol are indicated. A  $\frac{1}{2}$  per cent solution of sulphate of zinc may also be employed.

In gonorrhœa, patients are usually treated in a most superficial manner by physicians, usually by vaginal irrigations, but the proper treatment should naturally vary with the localization of the infectious process. In the large majority of cases the infection is in the first place localized in the urethra and peri-urethral glands, and if the physician will examine his patients with care he will usually be able to find a urethritis. This urethritis set up an inflammation of the vulva by direct inoculation and consequently vaginal irrigations will only aid in spreading Neisser's organism upwards in the genital canal, uterus and tubes.

The gonorrhœal urethritis should be treated by rest, cleanliness and balsams taken internally and local irrigations of a 1 per cent solution of sulphate of zinc.

In other cases the gonorrhœal infection is localized in the cervical canal and on examination nothing will be found excepting an acute catarrh of the cervix uteri which secretes a greenish muco-purulent discharge. Under these circumstances the treatment should

consist in swabbing out the cervical canal daily with tampons soaked in a 1 per cent solution of bichloride of mercury, after which a tampon soaked in the glycerite of tannin should be inserted in the vagina. Vaginal irrigations and treatment of the specific metritis and adnexitis should only be begun when the cervical discharges take on a more mucous aspect and a whiter color.

Granular vaginitis only occurs some weeks after infection and should be treated by mild antiseptic irrigations. Vaginal irrigations are to be employed in cases of inoperable carcinoma of the cervix and vagina. A 1 per cent solution of creolin should be used once daily, a quart or two of the solution being used, which will prevent the odor from becoming too severe and keeps the parts in a fairly good condition by modifying the supuration and necrobiosis. It is evident that the general health must be looked after and it is a positive fact that with proper local and general treatment these most unfortunate patients may be made to pass the last of their lives in a fairly comfortable way.

# DEPARTMENT OF PEDIATRY.

CONDUCTED BY ROBERT W. HASTINGS, A.M., M.D.

## ORIGINAL COMMUNICATIONS.

### TUBERCULAR MENINGITIS; WITH REPORT OF A PECULIAR CASE.

H. N. POTTER, M.D.

AMONG the diseases that are generally regarded as affections of early life, there is not one that is really so little understood and so unsuccessfully treated as tubercular meningitis. While this disease is not an uncommon affection, it is very often the case that a post-mortem reveals the fact that a wrong diagnosis had been made which is only proven when it is too late. This, then, brings up the question regarding a primary and secondary form of this disease and it may well be asked—"Why does tuberculosis first make its appearance in the form of meningitis, and why does it not show symptoms of a general tuberculosis before becoming localized in the meninges?"

If the authorities of most of our writers can be recognized wherein they assert that this disease is almost always secondary to the affection in some other part of the body, why do

we find tubercular meningitis in children who have been apparently healthy prior to the attack of the disease?

Many eminent writers assert that in primary cases, which are especially frequent in children and young people, it seems to arise in persons previously quite healthy, or at most after a few weeks' malaise; but even in these instances, after death, *it is nearly always the case that some other lesion is present*, such as caseating bronchial glands, or miliary tuberculosis of the lungs and other viscera, or a caseous nodule in the brain itself.

Generally speaking, tuberculosis invades the body or it becomes susceptible through three and possibly four channels: hereditary taint, partaking of milk from a cow infected with tuberculosis, nursing by a tubercular woman, and possibly by the bacilli finding an en-

trance through a wound. It is only in rare cases, however, that it invades the body through the last-mentioned channel. As regards a hereditary predisposition there is no doubt; as may be said, also, of the infection through cow's milk and the breast milk of the mother or wet nurse, infected with tuberculosis.

I have referred to this disease as being little understood and unsuccessfully treated, by which I wish to convey the idea that while we know of the bacilli of tuberculosis, know the results of its invasion of the body and the very unsuccessful treatment of the conditions that arise, we are very much in the dark regarding a diagnosis and causes that localize this disease without first showing symptoms of a general or miliary form which reasonably should occur.

It is not difficult to find a cause for tubercular meningitis when the patient is already affected with phthisis, hip-joint disease, caries of the spine or other tubercular or strumous complaints, which make the disease secondary; but the reason for a primary form of this disease is very much in the dark, and our knowledge of the local invasion, especially in the form of meningitis, is very little.

*Etiology.*—This disease occurs at all ages, but is generally regarded as more frequent in children than adults, and it is very certain it affects males more than females. It is claimed by medical writers in general that so far as its causation is con-

cerned, it is constantly associated with tubercle elsewhere in the body, and is really secondary. Primary cases which are found in children and young people, seem to arise in persons previously quite healthy or after a few weeks of ill health; still it is claimed that even in such cases the condition is due to tuberculosis in some other region of the body. There may be a discharge from the ear, but if it has any relation to the disease, it is either that it indicates general ill-health, or that it opens a passage for the entrance of the tubercle bacilli. Sometimes the glands of the neck enlarge, break down and suppurate prior to this disease being manifested.

We know that the cause of tuberculosis, no matter what part of the body is affected, is due to a bacillus, which may invade the body through infected cow's milk or the breast milk of a tubercular woman and possibly through a wound. Experiment has clearly shown that the introduction of tubercle bacilli into the tissues will produce tubercles; and this must be by some special irritant properties of the bacillus. In relation to the occurrence of tuberculous disease in man, we have before us the question, how is it usually introduced into the system, so as to produce the numerous tubercular lesions of the bones, joints, lungs, peritoneum and other organs? If this cannot in every case be answered, it is in many instances sufficiently obvious. The bacillus may enter from without through the mu-



cous passages, of which the respiratory gives the preponderating number of instances; thus, tuberculosis of the lungs follows the lodgment of the bacillus in the bronchioles or lung tissue. With comparative rarity, the bacillus may enter through a wound. In most cases we must suppose a special predisposition on the part of the individual (hereditary), or of the tissue first affected (depressed vitality from inflammation), which allows the tubercle to establish itself and thrive. Allowing this to be true, it still does not account for a primary meningitis being manifested when it is so reasonable to suppose that other organs of the body, more exposed, should be affected first and show unmistakable symptoms of the disease.

*Morbid Anatomy.*—The characteristic appearances are seen in the pia mater and consist of the effusion of lymph, and the presence of tubercles. The lymph is gelatinous and translucent, or more opaque, and gray or a grayish-yellow, rarely or never purulent and is contained in the meshes of the pia mater, especially at the base of the brain, over the chiasma, the space behind it and the adjacent crura and pons. It commonly extends into the Sylvian fissure on each side, along the course of the middle cerebral artery. The surface of the hemispheres is free from lymph, but it is found at the top of the cerebellum, at the anterior part. With the lymph are mixed tubercles, of different sizes, gray and opaque, occa-

sionally commencing to caseate. Under the microscope the smaller tubercles present lymphoid corpuscles in the perivascular sheath; the larger tubercles may present giant cells and bacilli. There may be abundant lymph in the characteristic situations, with few, if any, tubercles, or there may be a number of tubercles with little lymph. Occasionally there may be symptoms indistinguishable from those of tubercular meningitis, in which tubercles are found on the surface with no meningitis. The ventricles of the brain are commonly distended with fluid, the convolutions are flattened against the skull, the fornx and septum lucidum are generally soft, and the ependyma of the ventricles presents a granular or sanded appearance. The cranial dura mater is not usually affected, but the spinal dura mater sometimes shows minute tubercles, and lymph may extend from the pia mater to the cervical region of the spinal cord. A general tuberculosis is not uncommon. Tubercles may be found in the lungs, liver, spleen and kidneys. In both secondary and primary cases the modern view is that the meninges are infected from a preceding tubercular deposit in the lung, kidneys, bronchial gland, brain or elsewhere; or possibly from outside.

*Symptomatology.*—The symptoms will be first described as they commonly occur in children, and the differences in secondary cases afterwards mentioned.

There is often a stage of ill health. The child is restless, loses appetite, may be occasionally sick and has constipation. The illness begins more definitely by headache, vomiting or a convulsion. The headache is severe and continuous, and there is moaning or occasionally a sudden cry. There is a moderate degree of fever, quick pulse, sensibility to light and sound. The child shuts its eyes and resents being disturbed. The vomiting does not generally last long, and the convulsions that occur at the beginning are seldom repeated.

After a few days there may be slight delirium and the patient becomes drowsy. The head is sometimes retracted and neck stiff. The abdomen becomes hollowed out or retracted, the margins of the ribs and iliac crests being prominent. The pulse may be slow, and often irregular; the respirations slow, sighing and irregular; the temperature is generally high, oscillates between  $101^{\circ}$  and  $103^{\circ}$ . There is a tendency to vasomotor paralysis as seen in the flushing of the face. If the finger is drawn across the skin of the forehead or abdomen, a broad red line quickly appears which may last as long as five minutes. This condition, which is not peculiar to, but only more marked in meningitis, is called the cerebral streak. Changes often occur very early in the optic disk, which at first becomes vascular and then shows definite optic neuritis. Food is taken badly and the bowels are constipated.

From this point the case may go to a fatal termination without other symptoms. The drowsiness increases to coma, optic neuritis is more marked, the abdomen becomes more hollowed, pulse more irregular, feebler and generally quicker, the respiration may take on the character of Cheyne-Stokes breathing, the temperature may fall more or less rapidly, or before death rise quickly to  $106^{\circ}$  or  $107^{\circ}$ . Mucous accumulates in the bronchial tubes and with failing pulse death takes place. It is very often the case that the last few days are marked by local symptoms. An arm or leg, or the arm and leg on one side become rigid or paralyzed. There may be facial paralysis or ptosis. The pupils are very often unequal and may be insensitive to light. In this stage convulsions may occur. With these symptoms coma becomes more profound and death takes place as above shown or the patient is asphyxiated in a convulsion.

The duration of the illness varies between ten days and three weeks from the beginning of the pronounced symptoms, but it may be five or six weeks. The above course of the disease has been divided into three stages—irritation, compression and paralysis, but it is not always easy to distinguish between them, and in some cases the more typical symptoms may be little marked, coma alone being prominent.

In secondary tubercular meningitis the symptoms are often more rapidly

developed. The patient may, with little warning, become delirious or have paralysis of a limb or face, or have a convulsion, quickly becoming comatose, and dying in a few days.

*Diagnosis.*—This is sometimes easy, but at other times difficult and impossible until late in the illness. We must expect meningitis when there are decided head symptoms accompanied by fever, but headache alone would not be a diagnostic symptom. In young children otitis may cause headache, moaning, vomiting, photophobia and the desire to be undisturbed. A careful examination of the ear and mastoid process may reveal this localized condition. Enteric fever may for some days resemble meningitis, but in that fever, headache rarely persists after the tenth day, and generally by that time the bowel movements or the rose spots on a full abdomen, will decide the diagnosis, which will be confirmed later by the absence of convulsions, rigidity or paralysis. The mistake is often made in cases of meningitis, without prominent headache, but with flushed face, delirium and pyrexia, they being diagnosed as enteric fever. The most useful symptoms are irregular pulse, sighing or irregular respiration, rigidity of muscle or paralysis, convulsions and optic neuritis. However, optic neuritis may occur in enteric fever. Tubercle of the choroid only occurs in a small percentage of cases and is not to be depended upon alone for a diagnosis. In young children,

decided cerebral symptoms accompany other acute sickness, as in pneumonia and broncho-pneumonia; there may occur drowsiness with a retracted head, and convulsions may occur towards the end. These symptoms would be explained by the detection of localized dullness with bronchial breathing, but râles over the whole chest might indicate a general tuberculosis. The exhaustion following mal-nutrition, bad feeding or severe diarrhoea in young infants may simulate this disease. The child is drowsy or comatose, with pale face, sunken eyes, dilated, irregular pupils, and irregular, sighing respiration. It was formerly called hydrocephaloid disease. It is distinguished from meningitis by the history, absence of fever and local paralysis, the depressed fontanelle and its speedy improvement under supporting treatment. The distinction of the tubercular from other forms of meningitis rests largely upon the absence of local cause for a suppurative meningitis, as cranial injury or otitis; the previous existence of strumous or tubercular lesions, the paralysis of cranial nerves, indicating that the meningitis is situated at the base rather than over the vertex; the duration, which is generally much shorter in suppurative meningitis. So far as the clinical history goes, and the absence of any local exciting cause, the same diagnostic points cover those cases of meningitis which mostly affect infants or very young children, in



which no tubercles can be found, but only a grayish lymph at the base. In every respect but the absence of tubercles they resemble tubercular meningitis, from which they cannot be distinguished during life. With meningeal symptoms and tuberculosis of the choroid a diagnosis may be made of tubercular meningitis. With meningitis a lumbar puncture may give a diagnosis also.

*Prognosis.*—The prognosis in this disease is very grave, and it is a question whether there is ever a recovery. In the cases reported as recovering, there is a just suspicion that a wrong diagnosis had been made. We rarely find traces of a past tubercular meningitis in those who die of other diseases, and it is very difficult to prove during life that the case is tubercular, even if meningitis is present. Still a certain number of patients with apparent tubercular meningitis do get well. The recovery is slow, the speech, vision, etc., remaining imperfect for weeks or months. The prognosis, then, is unfavorable, especially in the secondary form where phthisis, hip disease or other well-marked tubercular lesions are present. Yet primary cases need not be considered absolutely hopeless.

*Treatment.*—With the prognosis unfavorable, the treatment is reduced to a small limit. Cold should be applied to the head by means of an ice bag, the bowels kept open and milk given in small quantities, frequently. Blisters are sometimes applied to the

back of the neck, but are of doubtful value in the tubercular form of meningitis. Irritant applications have been used upon the close-shaven scalp, but here, too, they seem to be generally of little benefit. In some cases iodoform ointment may show some beneficial results. Of the internal remedies, iodide of potassium has been extensively used in the hope of influencing the morbid process. The bromide is given to allay the pain in the head. A combination of the five bromides has also been used.

*A Somewhat Peculiar Case.*—Knowing that cases of this disease are always interesting to the profession, and especially so when they vary from the usual course, I will give a history of one that I recently discovered which assumed a somewhat different form from the typical ones. The history of the case with its developments made the diagnosis reasonably sure, although no post-mortem was performed. The peculiarity of the case is in its changeable nature, for although the child was paralyzed from time to time, this would pass away, then occur again. The child had several spells of apparent collapse but would recover. As early as the fourth day the arm and limb on the right side were paralyzed, which passed away after a few days. Then the left arm and limb were affected, which also passed away, and finally, when the child died on the seventeenth (17th) day, there were no signs of paralysis. Another somewhat un-



common condition was the fact of the temperature gradually rising several days before death, instead of the sudden rise that occurs so often. The case is as follows:

A few weeks ago I was called to see a little girl one year of age who had been slightly ill for about a week previous. There had been no marked symptoms until the day I saw her when she was taken with vomiting and convulsions. I had treated the child a short time before for enlargement of the glands of the neck and a discharge from the ear, from which she fully recovered. The mother informed me that for the past few weeks the child had shown symptoms of her milk disagreeing with her, and had nursed but very little. Plenty of cow's milk had been given and it had received sufficient nourishment. While treating the child for its former trouble I got a history of tuberculosis, the mother's two sisters and her mother having died from it in a pulmonary form. I advised the mother to wean the child at once on account of the possible danger of its contracting the disease, the mother being predisposed, although no signs of tuberculosis were manifested as yet. The mother, however, did not heed my warning and continued to nurse the child and also gave it cow's milk.

At my first call I found the child in convulsions, pulse 110, temperature  $100^{\circ}$  (axilla), respiration about normal. There had been several convulsions and vomiting and the child

nursed badly. On the second day the pulse reached 120, temperature (axilla)  $101^{\circ}$ , respiration irregular and quickened, with no convulsions or vomiting, which never occurred again. The pupils were dilated and unequal, which continued throughout the course of the disease. The temperature then indicated tuberculosis inasmuch as it had the evening rise and the morning fall. On the third day the pulse reached 130, temperature  $101^{\circ}$  (axilla) and Cheyne-Stokes breathing. Fourth day symptoms about the same with paralysis of right arm and limb lasting about forty-eight hours; coma. From the fourth to eighth day symptoms about the same, temperature varying from  $101^{\circ}$  to  $103^{\circ}$  (axilla). On the eighth day the arm and limb on left side became paralyzed. From the eighth to eleventh day, symptoms the same with a gradual elevation of temperature. Eleventh day, pulse irregular and hard to count, temperature  $104^{\circ}$  (axilla), other symptoms the same. Twelfth day more normal pulse and respiration, temperature remaining at  $104^{\circ}$  (axilla). Thirteenth day, temperature  $103\frac{1}{2}^{\circ}$  (axilla), collection of mucus in bronchial tubes, other symptoms the same. Fourteenth day showed pulse 140, respiration oppressed, temperature  $104\frac{1}{2}^{\circ}$  (axilla), with increased collection in throat. Fifteenth day no change. There were no symptoms of paralysis. Sixteenth day, throat paralyzed. Up to this time nourishment had been given by the mouth, al-

though coma was present. Nourishment was now given by the rectum. The collection of mucus increased, respiration oppressed, heart weak, temperature  $104^{\circ}$  (axilla), child in a state of collapse. Seventeenth day, child died from failure of heart. There were no symptoms of general paralysis. Unequal dilated pupils present. The other symptoms in this case did not differ from a typical case of the disease. The bowels were constipated, abdomen sunken, cerebral streak, delirium, dilated unequal pupils, etc. I examined the child both at morning and night for several days and noted the evening rise and the

morning fall of the temperature. A careful examination of the case showed no symptoms of any other disorder, not even a general or military tuberculosis, and a cause for the condition in this case might be due to a hereditary taint as the child was suckled, from being fed on cow's milk infected with the germ or possibly by the entrance of the infection through the discharging ear. The mother's milk was not analysed as she showed no signs of tuberculosis, although there is no doubt a hereditary predisposition.

113 Cherry St., Burlington, Vt.

## ACRANIAL MONSTER.\*

### SPECIMEN AND REPORT OF THE CASE.

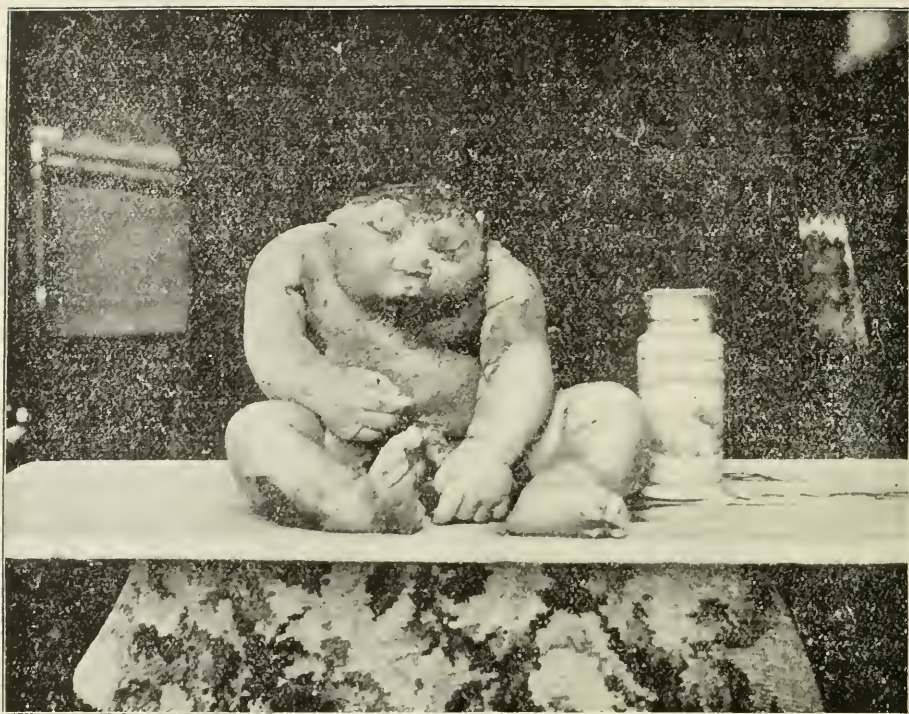
W. F. WILLIAMS, M.D.

THE case and specimen which I present to the Association may be more readily understood by a brief clinical history. Mrs. H. R., multipara, aged 28, had had two normal and uneventful pregnancies, giving birth to normal and well developed children, one of whom lives, a fine specimen of healthful and vigorous childhood. Her last menstruation occurred on March 27, 1890. About the last of April, nausea and vomiting from her pregnancy set in, and con-

tinued with unusual severity for about three months. In July she suffered a severe fright from a snake. On November 1 her home was burned at two o'clock in the morning, she being the first to discover the fire, which had gained such headway that the family barely escaped with their lives.

At four and a half months from date of last menstruation she detected fetal movements, this occurring in first part of August. The movements continued lively until about Christmas and first of January, which

\* Read before the Medical Association of Georgia, April 29, 1897.



The above photograph shows specimen, a little shrunk from alcoholic solution. The bottle is a one-ounce quinine bottle for comparative purposes. It will be seen that the arm of the monster is very near the size of bottle.

should have been her normal term (about January 3 being the term from common methods of calculation). From this time foetal movements became less active, almost ceasing, until the day before delivery, when they again became unusually lively. In December she experienced a very severe attack of dysentery lasting about two weeks, leaving her in a very debilitated state.

On the morning of March 10, 1897, labor came on, and when I arrived I found on examination a normal face presentation with chin well

engaged under pubes. There was a remarkable absence of cranial firmness, which I attributed to the unusual presentation and lack of familiarity on my part with such presentations. While the pains were very short for this stage of labor they were rhythmical, and considering the advance apparently made, it was unaccountable to me why delivery did not take place. The face had remained almost stationary so long under repeated pains that I finally decided, in the interest of the features of the child, to use forceps. It was then



that my astonishment reached its climax, for in passing my finger into the vagina to guide the blade of my instrument, I could find no head to guide it around, but massive shoulders seemed to fill every available space, and block nature in her efforts at delivery. I grasped the headless face, and tried to bring the right shoulder down upon the perinæum, but apparently with no success. In my extremity I sent for my friend, Dr. Goethe, expecting the necessity of extracting body in sections; but happily for my own satisfaction and the preservation of my specimen, I succeeded in passing a twine in a catheter through the right axilla, and after drawing a strong tape through with it, succeeded in drawing the shoulder down, and with the aid of my tape and right forefinger broke humerus, and delivered right arm. The remainder was plain sailing, and I was happy in delivering the body without a single tear or bruise to the mother. The placenta was not of unusual size. The patient made a rapid and uneventful recovery without the establishment of active lactation.

I am sorry to weary you with the details of the case, but hope it may prove interesting in connection with the singular points presented for our consideration. The first thing is the brainless monster. How was it produced in a family where on both maternal and paternal sides there had never been a physical anomaly? Those who be-

lieve in maternal impressions may find in the fright from the snake some resemblance between this monster and that symbol of subtlety and wisdom. And what is more apparent that what was suggested to me, that this mother, laboring under the terror of night, witnessed her home collapse in flame and smoke—what more natural than that she should transmit to her unborn child the wreck and ruin that she saw, and in the very citadel of this divine temple actually duplicate the sorrows and woe of that night? I shall leave this to those inclined to such things, with the suggestion that there is ample room for the imagination.

Possibly there may have been a connection between this anomaly and the poor health with repeated shocks which the mother suffered during her pregnancy.

But leaving the arena of speculation and imagination to those interested in embryology and teratology, I turn to those especially instructive to the obstetrician. I refer, in the first place, to the long period of gestation. I believe that while no one attempts to determine definitely the exact number of days in a normal pregnancy, all agree that they are about two hundred and eighty. But here is a case in which, beyond a doubt, gestation lasted for three hundred and forty-five days, or an excess over a normal period of sixty-five days. I am positive of this. The lady is a lady of intelligence, and she is most em-



phatic as to the period of last menstruation, her morning sickness, and the time of quickening. But this is not all. In the face of two normal pregnancies and normally developed children of a normal size, she gives birth to a headless monster of extraordinary size, weighing at least ten pounds and possibly twelve. Were there a cranium and contents of a proportionate size this child must have weighed at least fourteen or fifteen pounds—double the size of her former children.

I believe it is an established principle that pelvic abnormalities, causing more or less obstruction to the outlet of the womb, may cause a prolongation of pregnancy, but this case demonstrated a normal pelvis by two normal births and, with much difficulty, this large body. There are then these two facts that remain, to my mind at least, associated as cause and effect: the absent cranium, and the long period of pregnancy; and we must conclude that the head and calcified cranium of the fœtus is a decided factor in closing the term of a gravid uterus.

The factors which are generally accepted as entering into the precipi-

tation of labor may be briefly summarized as follows: the tension to which the muscular fibres of the womb are subjected in the last months of pregnancy, and their re-action therefrom; the increased irritability of the gravid uterus at menstrual epochs; the progressive changes in tissue and the circulation of the blood about the attachment of the decidua, causing its easy response to an irritable womb, in separating, and so acting as a foreign body. But would these causes so combine, if there were no firm cranium to respond to their call, and so increase the irritability of the uterus by its hard and unresilient pressure upon its wall as to whip it into active and permanent contractions? My case would seem to answer, "No."

Furthermore, I find on investigation, that as a rule, these acranial monsters are of unusual size, and are spoken of as bodies of fine development. Is it not possible that as a rule, these monsters, like this specimen, were over-term, and attained their magnificent growth by extended life *in utero*?

Blackshear, Ga.

## BLENNORRHOEA NEONATORUM.\*

EDWARD J. BERNSTEIN, M. D.

THERE are annually more children sent through life blind, and from this preventable disease than from any other single cause.

Notwithstanding all which has been written upon and taught of this matter, its great importance and the grave consequences which ensue upon bad treatment, a great deal remains to be learned, especially by the bulk of midwives and many general practitioners.

Prevention takes the first place in the consideration of this topic. Properly, it should be started in the men who suffer or have suffered from gonorrhœa. No such patient should be permitted to depart from his doctor without being made cognizant of the whole train of evil consequences which result from incomplete eradication of the disease.

It need hardly be emphasized that coitus in the acute stage is not only dangerous but almost criminal, and the same statement applies to the chronic forms in which the "threads" and cocci can be discovered. No man who has ever had "clap" should think of marriage until a thorough bacteriological examination of his urine proclaims his urethral canal healthy. Gynecologists will readily second

this statement from their own standpoint.

Once the mother is infected, more active prevention must be instituted. Gynecologists are not yet united as to the best method of disinfecting the vagina of the expectant mother; while some advise use of carbolic acid, sterile water, bichloride of mercury, etc., others abjure the use of any drug, saying that more infection is thus carried to the mother than when relying solely on the natural discharges; still others have gone so far as actually to brush out the vagina with brush and soap. On the other hand the opinion is practically a unit upon the necessity of disinfecting the eyes of the newborn. The question is only, "How?" As the gonococci or other infectious matter—for be it remembered that only a certain percentage of blennorrhœa neonatorum is due to the before-mentioned organism—are found on the eyelashes and lids of the babe, the conjunctiva is only infected when its eyes are opened after birth. Midwives and nurses should always be and have been, thoroughly impressed with the necessity of at least cleaning by mechanical means, the lids and lashes of their charges immediately after birth. In Germany and Austria the old text-books say: "Mid-

\* Read before Maryland Medical and Chirurgical Faculty, April 20-23, 1897.

wives must be made cognizant of the importance of clearing the mucus from the eyes with clean warm water *as soon as the head is born*. Upon the carefulness with which this rule is followed out, often depends the sight of the babe."

Since gynecologists have so long practiced this method and it was found insufficient, the more advanced men sought better methods of prevention. Of all these, that of Credé given in his article in 1882 stands out preëminently. His words are: "After severing the navel cord, all the blood and mucus, etc., which clings to the babe are removed in the well known manner. It is then placed in the bath. The lids especially freed of all mucus with clean absorbent cotton and perfectly clear water. One must not use the water of the bath for this purpose. After washing the baby, it is placed in the cradle before it is clad, and with two clean fingers the lids are separated and *one* drop of a 2 per cent solution of argentum nitrate is dropped from a glass rod, which almost touches the cornea, *directly on its centre*. The eyes require no other attention. In some cases a slight redness and swelling occur in the next 24 or 36 hours with some mucous discharge."

In 1160 births, Credé had only one case of blennorrhœa neonatorum, and in this case his treatment was neglected in the rush of work.

Königstein, Felsenthal, Konkenberg and some others report that they

still saw from 0.7 to 1 per cent of blennorrhœa neonatorum in cases so treated, but these few were more than likely due to incompleteness in following the method.

Keilman delivered 500 babies without a case. All he did was to *very carefully* wash the babies' lids as soon as the head was born. You will notice, however, that he is careful to follow the law of the old German textbooks.

Herman Cohn of Breslau in his work, "Hygiene of the Eye," says in five periods from 1886-90 in hospital practice, he had 17, 19, 16, 12 and 10 per cent of blennorrhœa. In '94 again 12 per cent. In private practice, where it has always been less frequent, in the same period it was 9, 6, 5, 4 and 3 per cent, and in 1894 also 3 per cent. He says a decrease can hardly be said to be shown. These numbers mean percentage of blennorrhœa neonatorum to other eye diseases. Silex also contends (*Zeitschrift f. Geburtsh. u. Gynäk.*, Bd. 31, Heft. 1) that in 1878 before introduction of Credé's method, they had 12 per cent, and from '89-'94 still saw from 10 to 12 per cent among the patients of the University of Berlin Clinic.

I must repeat that this is not offered as an argument against Credé, but simply to show how large a number of these cases appear, notwithstanding all that should be known on this matter.

The large number is due to negli-

gence on the part of the accoucheur. There can be no question as to the safeguard with which Credé has surrounded the baby's sight. Sometimes a slight redness of the lids or even a catarrhal conjunctivitis may ensue, and especially in those cases where the solution had been used daily, in the second eye as preventive, where the other eye had become infected.

"I have seen redness, some photophobia, some lachrymation, but never keratitis," says Herman Cohn, "result from use of this plan." (*Afbl. f. prak. Augenh.*, April, 1895.)

But as to Credé's method, we can all unite in saying with him that we should like to see one case where positive harm has resulted.

If ever a case of keratitis had resulted, the opponents of this plan would have made ample use thereof. We may then trust even the clumsiest midwife with the silver solution in this case. Many men hold that before a midwife is granted privilege to practice, she should show her ability to perform this simple operation, and if she shows her inability to do this, she should be mercilessly debarred from practicing. At least we should demand that the lids of all children should be thoroughly cleaned with boiled water, immediately after the birth of the head, and where a vaginal discharge exists in addition to the foregoing, Credé's plan should be instituted.

This is the Prussian law. We ophthalmologists believe that the laxity

of the accoucheurs in adhering to this plan lies in the fact that they do not see many of the frightful results which come under our notice.

It is a great mistake to imagine one may compromise by using a milder solution than 2 per cent. It has been shown that *this* solution destroys the gonococci in five seconds, whereas weaker solutions require from one-half ( $\frac{1}{2}$ ) to one minute. It is unjust to Credé to attribute bad results to him from modification of his treatment.

Of course we are all aware that each case of blennorrhœa neonatorum is not due to the gonococci, but other virulent discharges will also produce an inflammation a trifle less dangerous. Yet the 2 per cent solution acts well in all cases.

It seems to me we should ask our city and state health officers to send out to all midwives and practitioners in the state at regular stated intervals of, say, three or six months, a copy of the excellent laws bearing on ophthalmia neonatorum, which this body secured from the Legislature. Teachers of obstetrics cannot impress too often nor too strenuously upon their students the need of following out all that is known upon this matter.

Professor Cohn of Breslau found in an investigation of the birth-rate of that city in 1894, that 2 per cent of the children born that year suffered with blennorrhœa neonatorum. This is startling and enormous; few oculists would have believed the percent-



age to be so high; it is especially deplorable when we consider that they might have been avoided by following Credé's treatment.

Ordinarily, every case of blennorrhœa neonatorum should be cured without permanent harm to the cornea. That such cannot always be done has been shown by the writings of various specialists. In the American Ophthal. Soc. Reports of 1893, Dr. Randall says: "We should not place too great reliance on prophylaxis alone," as he saw a case developed in spite of it and though treatment was promptly instituted, the child lost both eyes—the one by corneal perforation. This was, however, a seven-month baby and badly nourished. In the discussion which followed, Drs. Sutphen, Knapp and Gruenig coincided with these views and Dr. Knapp farther held that one could not possibly guarantee a good result in any given case.

Romer (*Annales d'Oculistique*, CXII, p. 373) says: "At times severe cases recover with little treatment; at others the cornea is perforated in spite of the most careful attention."

Otto Burchhard (Inaug. Dissert., Berlin, March 2, 1894) quotes the statistics of the Charity Hospital in Berlin from 1876-90.

In 30 cases which entered the hospital with cornea intact,

- 17 left without corneal lesion.
- 9 left with slight clouding.
- 4 left with corneal ulceration.

In one of which total blindness resulted.

In 34 cases in which various degrees of corneal injury were present when admitted,

- In 4 cases clouding disappeared.
- 16 cases left with slight clouding.
- 10 cases left with permanent injury to cornea.
- 4 cases left with scars, result of ulcers.

And one of these ended in total blindness.

In the past five years I have treated 48 cases. In one total blindness resulted. In another, which I am at present treating, some clouding has resulted, which may clear up.

I quote these facts to show you that the treatment is not always a matter of routine.

In two of the latest books on Pediatrics, the matter is tucked away in an obscure corner and dismissed in a few words.

"Once or twice in twenty-four hours two or three drops of a one per cent solution of nitrate of silver should be put in the eye; or a stronger solution may be used and immediately neutralized with a salt solution. The next most valuable means of treatment is cold. Ice-cold compresses should be employed for thirty minutes every two hours in the milder cases, while in the most severe ones they may be used continuously. These should be cooled by placing them on blocks of ice, and changed every minute, so that they are kept

cold. If the cornea is involved, the pupil should be kept dilated by atropine, and this is wise in all severe cases." (Holt, "Diseases of Infancy and Childhood.")

"For irrigation many solutions have been advocated. The most simple and perhaps the best, is a saturated solution of boracic acid, or one of bichloride of mercury in the strength of 0.05 gramme (1 grain) to 480 c.c. (1 pint) of distilled water. In the later stages of the disease, where all the tissues are relaxed, a solution of nitrate of silver, 0.5 gramme (10 gr.) to 30 c.c. (1 ounce) of distilled water, may be cautiously used once a day." (Roth, "Pediatrics.")

The object above all is to keep the eyes free of *all* secretion; for this, various preparations are in use. I mention these in their relative importance.

10 to 15 drops of a sat. sol. of potass. permang. in a half-pint (drinking glass) of water, or two or three small crystals in the same quantity of water, solution to be made fresh every day.

This is antiseptic, non-irritating and effective, and is recommended by Fuchs, Stellwag, Kalt, Karl Hoor and others, above everything else.

Sol. of hydrarg. cyanide, 1-1000, also an excellent unirritating germicide. It is likely to spoil, and must be made fresh daily. This makes it only practicable in hospital practice.

Formalin, 1-1000. This is a good germicide, but irritating and painful, as I know from personal experience.

Lastly, sat. sol. acid borici. This is

mildly antiseptic and fulfills the indications in many cases, in conjunction, of course, with 2 per cent sol. arg. nit.

Since the inauguration in 1890 of the use of a 1-1000 arg. nit. sol. (in the Berlin Charité) which is used only four times daily, each time thoroughly douching the eye, it is claimed they have not had a single bad result.

Knies, "Die Gonorrh. Augenentzündungen u. d. Behandlung." has an excellent plan for attending to this. He advises filling the space between internal canthus and nose with the solution and then by movement of the lids cause the secretion to exude and the antiseptic solution to enter the conjunctival sac, and to continue this procedure till the solution remains clear. This is done every half to one hour.

After this measure has been completed a piece of cotton is soaked in antiseptic solution and laid over the eyelids, which prevents lids from sticking together, and then when the lids are separated under this layer of cotton there is no danger the purulent secretion flying out and infecting the attendant's eyes.

The eyelids must be drawn apart and flooded with one of the above mentioned solutions every half hour, day and night, either with an eye dropper or from a piece of absorbent cotton soaked in the solution.

A drop of a 2 per cent solution of arg. nit. is brushed over the inverted

lids—not on the *cornea*—once or twice daily according as the discharge is excessive or not, and must be omitted as soon as the purulent discharge has ceased one or two days.

This solution is contra-indicated in *hard* tense swelling of the lids where ice poultices applied 10 to 15 minutes of each hour are called for. Ice is also to be used where ulcer of the *cornea* is threatened.

Nitrate of silver is not contra-indicated when ulcer of *cornea* exists.

An ulcer usually begins in the lower quadrant of the *cornea* and extends rapidly unless checked.

When an ulcer has once formed, most authors recommend touching its edges with solid stick. When this does not suffice, the galvano-cautery should be used, or Salmisch incision through the base of the ulcer. Knapp and others recommend touching with tincture iodine.

I have used, with great success in several cases of *corneal* ulcer in other affections, the 40 per cent solution of formalin. I apply it by first cocainizing the eye fully, then with bit of cotton wrapped tightly on an applicator, the ulcer is lightly touched with the solution. The lids must be kept apart for a short time as the fumes of formalin are quite irritating. Then the eye is flooded with the following ointment:

Atropine sulph.,	0.1
Iodoform,	1.0
Lanolin,	5.0
Ol. amygdal. dulcis,	10.0

I lay great stress on the use of this iodoform atropine ointment; it is used three times daily. The upper lid is drawn up and the ointment is wiped from a glass rod by it. With this latter treatment I add *heat* by means of absorbent cotton dipped in hot water at a temperature of 150° to 180° Fahr. (this is about as hot as the finger can comfortably stand). Heat is thus applied fifteen minutes of each hour.

One must be mindful of the injunction of Gruening, who says, "Eyes are lost, not only through too little treatment, but also through too much." The nurse must be instructed not to touch the *cornea* in her efforts at cleanliness and the attending physician should remember that he is *not* to touch the *cornea* in his daily application of arg. nit., lest he produce keratitis, as has been done often enough, while in Credé's prophylactic treatment you are especially told to drop the solution directly on the centre of the *cornea*. This is done that the solution may be equally spread over the whole eye, and as it is only done once no harm can result. I wish to insist again on the utmost importance of following Credé's advice, and further that when the attending physician feels that his case is getting the best of him, he call some one else to his aid who deals daily with these affections. Poverty should be no hindrance, for when the parents are too poor, I am sure any one of us would gladly offer our help to save a child

from a life of blindness and dependence.

Finally, I wish to protest against the use of cocaine in these cases, and also against the practice of giving strong solutions of arg. nit. to the nurses to be used frequently during

the day. Nitrate of silver should only be used as above indicated by physicians, and the more radical means by those *alone* who are especially skilled.

800 Madison Ave., Baltimore, Md.

## PROCEEDINGS OF THE PHILADELPHIA PEDIATRIC SOCIETY.

JUNE 8, 1897.

J. P. CROZER GRIFFITH, M.D., IN THE CHAIR.

CONGENITAL MALFORMATION OF THE RECTUM, WITH REPORT OF A CURIOUS CASE BY DR. ELWOOD R. KIRBY.

THE rectum and its terminal apparatus, the anus, like other portions of the human anatomy, are liable to malformations and imperfections, the result of some extraordinary derangement of the acts of the plastic energies at some period during the evolution of the embryo.

Some of these vices of conformation are by no means uncommon; many of them are remediable, and as they generally admit of no delay in their treatment, a knowledge of all the medical and surgical measures which experience has decided to be best adapted to remedy each particular deformity, is of the utmost importance to every physician and accoucheur.

No obstetrician should ever neglect the important duty of examining every infant immediately after birth and for a day or two subsequently, to

ascertain without a doubt the presence of an anal aperture, that the canal for some distance above is pervious and that the parts perform their normal function.

As to the frequency, Collins found one case in 16,645 children born in the Rotunda at Dublin, and Löhrer of Vienna two cases in 50,000.

The mortuary statistics of the city of Brooklyn from 1891 to 1895 show that during that time twenty-five children died within a few days after birth from complete congenital imperforation of rectum or anus. During this same period there were 90,180 births recorded, but it is the opinion of the registrar that not more than half of the actual births are recorded. Accepting his estimate as correct, the proportion of cases would be one to every 7,200 births.

Notwithstanding these statements, I am of the opinion that these malformations are of much more frequent occurrence than is generally con-



ceded, and that many children born with such defects are suffered to perish for want of proper and timely surgical assistance, through either the neglect, ignorance, or mismanagement of midwives and monthly nurses.

With regard to the primary cause which determines these and other congenital vices, nothing of a definite character has as yet been ascertained, and the subject still remains a problem for future organologists to solve.

There are some malformations which do not depend upon an arrest of development, but are the result of intra-uterine diseases. The narrowing and contraction of the anus, with more or less thickening of the integument, is the result of an anal inflammation. At times this may result from preternatural activity of the sphincter muscle. In such cases the coarctation from being purely spasmodic may gradually become organic and permanent.

Peritonitis may occur during the life of the fœtus, and giving rise to intestinal adhesions, occasion malformations.

All deformities about the rectum may be conveniently arranged under seven headings:

1. Congenital narrowing of the anus or rectum, without complete occlusion. The anal aperture is at times preternaturally small either in consequence of a contraction of the lower end of the rectum, or from the fact that the skin may extend occasionally over the border of the anal margin.

The outlet may be sufficiently large as to permit the meconium to drain away, or so small that the escape of excrementitious matter is impossible.

The symptoms when prominent will be vomiting and abdominal distension; when slight, some constipation and difficulty in voiding the fæces.

The diagnosis is usually easy, for the contraction is near the anus and can be readily detected by the finger, or seen when due to a fold of skin extending across the anus.

The treatment consists in dividing the ring or skin on the dorsum and daily dilatation either with the finger or soft rubber bougie.

2. Closure of the anus by a membranous diaphragm (atresia of the anus).

The membrane in these cases may be of greater or less firmness and thickness, and may be composed of skin or mucous membrane. It is sometimes so thin as to bulge with meconium when the child coughs or strains, and has been known to rupture spontaneously. This is the simplest of all forms of congenital malformations, but unfortunately the rarest.

It is easily diagnosed by simple inspection of the parts, and the treatment consists in making a crucial incision through the membrane.

3. Imperforate rectum. In this class one may expect to find some of the most difficult cases of malformation, although some are comparatively simple.

Instead of a normal anus the skin of the perineum extends across the anal region from side to side, and the rectum may terminate quite a distance from the normal site of the anus.

The intervening space may be made up of connective tissue, while a circular elevation or depression marks the normal site of the anus. Occasionally a distinct fibrous cord may be traced from the rectal pouch to the skin.

If the rectal pouch be not at too great a distance from the skin, a sense of fluctuation may be felt by firm pressure of one finger over the anus and the hand over the abdomen.

4. Imperforate rectum with a normal anus. The septum which separates the anal and rectal pouches in these cases is generally within easy reach of the anus, and may be so thin as to permit a sense of fluctuation.

In most cases, however, the septum is thick and composed of cellular or fibrous tissues, lined both above and below by mucous membrane. It may be perforated like the hymen and allow the slow dribbling of meconium. There may be also more than one septum. Voillemier reports a case in which the rectum was divided into four distinct compartments.

There is usually but little difficulty in the diagnosis of these cases, but the danger lies in the fact that the presence of a normal anus is apt to allay suspicion as to the true nature of the difficulty.

5. The anus may be absent and

the rectum open at any point in the perineum or sacral region. The lower portion of the rectum in these cases is usually of a fistulous character, lined by true mucous membrane, and the abnormal anus is always narrow and insufficient for its purpose.

Occasionally the rectum terminates in two distinct openings, at a greater or less distance from each other.

6. The anus may be absent and the rectum terminate in the bladder, urethra or vagina. In the females the vaginal opening is the most common, in males the bladder opening is the most common. This condition is usually rapidly fatal unless relieved by prompt surgical interference.

7. As a final group the rectum or the large intestine may be entirely absent.

The case I wish to report was a child three days old, I saw in consultation with Dr. O'Malley. Nothing had escaped from the anus, the abdomen was greatly distended, and the child refused to nurse. An examination of the case showed a normal anus with a membranous diaphragm (atresia of the anus). There was no bulging, and nothing to indicate the presence of meconium above this membrane.

We divided this membrane by a crucial incision and the finger passed readily into the bowel. I thoroughly dilated this portion of the bowel and waited a few minutes to see if any of the meconium came away. Nothing came. This rather surprised me, and I again introduced my index finger, and discovered that the canal ended

in a blind pouch. Careful palpation failed to reveal the rectal end of the pouch at  $3\frac{1}{2}$  inches. The question then arose as to the propriety of dissecting up the perineum and hunting for the rectal end of the pouch. But as we could not locate the upper pouch, I did not think it proper to subject the child to the great dangers of an extensive resection of the sacrum.

As a last resort I finally did a Maydl's colostomy, and after a great deal of trouble succeeded in finding a portion of colon in front of the left kidney and stitched it to the abdominal incision.

I opened the colon immediately and removed a large quantity of inspissated meconium. The child was then put to bed and freely stimulated, but only survived the operation 12 hours.

I was unable to map out the exact anatomical arrangement of the pouches through the very small abdominal incision. A *post mortem* was refused.

As to the general treatment of these cases, the following rules may be considered:

1. An operation should always be performed, and performed without delay.

2. If there be any chance of establishing an opening at the normal site of the anus, the surgeon should at first direct his attention to this procedure.

3. The use of a trocar as an aid in finding the rectal pouch before or after incision through the perineum, is

not sanctioned by modern surgical authority.

4. The results of attempts to establish an outlet for an imperforate rectum through the perineum, are not favorable as regards the production of a useful anus.

5. In case of failure to establish a new anus in the anal region, colostomy should at once be performed.

6. In the formation of an artificial anus the left groin is the best site for the operation.

7. Attempts at establishing an anus in the anal region after a colostomy, are attended with great danger, and are generally unsuccessful.

#### DISCUSSION.

DR. GIBBON.—I assisted in a case last winter of this kind which was very interesting. The patient was a female child, with obstruction of the bowels; there was no bulging, no pitting at the part of the perineum where you would expect the anus to be. I do not know whether there was discharge from the vagina or not. Incision was made in the median line, the rectum sought and found about an inch from the skin. On pressure upon the lower end of the pouch it was found that faecal matter came out through the vagina. Digital examination revealed a very minute opening large enough to admit probe, very high up in the vagina. The incision was then enlarged, the lower end of the bowel dissected away from the vagina, and brought down into normal position. This child recovered.

I imagine the reason it did recover was simply the fact that there had been an opportunity for a small amount of matter to pass through the vaginal opening before the operation.

There is one thing about these cases: I think they take the anæsthetic worse than any other kind of patients, rectal cases always do take anæsthetics badly, I believe. The child that I speak of came very near dying on the table and required persistent resuscitation.

Dr. Jorson.—I saw one case in the service of Dr. John Ashhurst, Jr., at the Children's Hospital during last winter which was very much like that described by Dr. Gibbon. It was a very young female child and the rectum opened into the vagina. The child was not at all in a desperate condition, as in the case described by Dr. Kirby. It was, however, deemed advisable to perform the operation at once. No anæsthetic was used. A curved, grooved dilator was passed into the rectum through the fistulous opening and cut down upon in the perineum, and the rectum was found without trouble, comparatively near to the perineum; it was brought down, the skin stitched to the mucous membrane of the rectum and the opening into the vagina was left unclosed.

I saw the child in the dispensary, where it was brought daily for dilatation, and although we had considerable difficulty in keeping the opening patulous, it gradually healed up satisfactorily and an opening of good size was obtained. There seemed to be

some sphincter action when I last examined the patient; although there is still a small opening into the vagina, the child discharges fecal matter through the opening in the perineum.

Dr. W. S. NEWCOMET.—I had a curious case turn up at the Southeastern Dispensary; when I saw the child it was about five months old. The mother gave a history of its having had two anal openings, one the larger, and one about three-fourths of an inch back of this, from which very little feces escaped. The child had had some diarrhœa and after this it became very much constipated, so much so that they had to use a spoon to relieve it. This lasted for two months, when diarrhœa again set in, and this time the opening further back had entirely closed.

When I saw the child all that was left was a small pit of about a quarter of an inch in diameter of pigmented skin, which appeared very much like another anus, although I could not insert a very fine probe. The child then had profuse diarrhœa and under ordinary treatment got well. It did not use this second anus at all with all this diarrhœa. Two months later the child had another attack of diarrhœa and was taken to another hospital where it died. The parents would not permit a *post mortem*.

Another curious thing about this child was that it had two openings where the helix joined the face; it looked very much like an enlarged follicle, such as is sometimes seen on an old man's nose. I asked Dr. Pier-



sol what he supposed this condition was due to; he said he supposed it was the remains of the brachial clefts.

DR. MARY E. ALLEN.—I at one time had in my practice a child with an anus opening into the vagina. The child seemed to be very badly nourished, the mother had not milk enough for it and it had to be put on artificial food and became very much constipated. It was exceedingly difficult to relieve the child under these conditions. The anus that opened into the vagina was very small. For a time it seemed to be relieved and then became constipated again, and most of the time it drew the head back as if it had some brain trouble and suddenly one morning died without any apparent cause. They would not allow a *post mortem*.

I also had under my care at one time a child about six years old. The history was, when that child was born it screamed every time the bowels were moved and had a great deal of trouble all the time up to coming under my care. It had no coccyx at all and I gave the child ether and dilated the anus and used bougies; afterward it was very much better, but there certainly was a great deal of fault in the nervous system of that child in more ways than one, and it is not yet a well child, although the rectal condition is better. The water dribbles away all the time and it has to wear an apparatus constantly. It had a club-foot; that leg has never grown to the size of the other and there is in consequence a curvature of the spine.

DR. C. J. HOBAN.—Some ten years ago I had a case in which a considerable period elapsed between birth of child and the time I saw it. I found on examination the rectum ended in a pouch  $\frac{1}{2}$  inch from the anus. After telling the people it would be impossible for the bowels to be opened and advocating operation, they refused. The child went on three weeks and nursing all the time, without any vomiting whatever. At the end of three weeks the pain became so distressing on account of dyspnœa and pressure of bowels in the diaphragm that they consented to operation and I performed posterior colotomy and found the bowels imperforate. I sewed up the wound and performed inguinal colotomy. Fæces escaped and the child lived about three days.

DR. E. R. KIRBY.—I think in those cases in which the rectum opens into the vagina it is perfectly proper to make an opening through the perineum, if necessary resect the sacrum and endeavor to restore the continuity of the bowel in that way. Usually the upper end of the malformed rectum is within  $1\frac{1}{2}$  to 2 inches from the skin. In true imperforate rectum, unless you can feel the lower end of rectal body at a reasonable distance it seems to me hardly permissible to grope blindly for it. It is better to have recourse to inguinal colotomy.

In regard to Dr. Hoban's case I would say that several cases have been reported in which the children lived several months without having had a passage from the bowels. In one case

the gut finally ruptured and the child died of suppurative peritonitis.

DR. ARTHUR VAN HARLINGEN read a paper on the subject of "Antisepsis in the Management of Diseases of the Skin in Children," which was discussed by Dr. Rosenthal.

DR. A. FERREE WITMER presented a paper with this title: "STIGMATA OF DEGENERATION IN EPILEPSY." The following is an extract:

There were various findings in patients at the Pennsylvania Epileptics Hospital and Colony Farm, and were classified under three headings, viz.:

(a) Morphologic deviations from normal.

(b) Functional deviations from normal.

(c) Purely psychic stigmata.

Under heading (a) the stigmata particularly marked were asymmetries of the skull and face, dental anomalies, inflammations of the skin and marked pallor independent of any organic disease.

Under heading (b) were noted: retarded puberty, various anomalies of the menstrual function, gluttony, merycismus.

Under heading (c) tests were made to determine the higher mental activities, such as attention, memory and association. Each patient was requested to write as many words as possible in one, two and five-minute periods respectively; also to write from memory a spoken, written and a simple sentence when read; and lastly, to write the associations of some familiar word (city, hospital, etc.). The results indicated a deficiency of mental activity when compared with groups of healthy children of equal age.

DR. J. P. CROZER GRIFFITH.—I would like to ask Dr. Witmer whether the defects referred to, particularly the mental stigmata, he would consider in any way characteristic of epilepsy, or whether they might not occur in many mental affections such as are in some instances produced by epilepsy. I have been interested in noticing the well known slowness in learning in very many mentally deficient children whether or not they had epilepsy, and have been looking carefully too into the condition of high arched vault of the palate, which is sometimes described as characteristic of the idiot, but without ever having been able to convince myself that idiots showed this any more than other children.

DR. MARY E. ALLEN.—It seems to me that some of these mental defects may be caused by the medicines which are taken. One epileptic patient of mine had been taking bromide for some time and the mental condition had grown worse and worse. I reduced the bromides and gave her salicylic acid, or sometimes salol or salicylate of sodium, and she became so much brighter mentally that she was able to write and remember things as she had not been for several years before.

DR. E. FERREE WITMER.—In reply to what Dr. Griffith has said: I would say that the psychology of epilepsy is yet obscure. It will probably be known shortly whether there is an actual psychology of the disease or whether the mental defects found in the disease simulate those found in

other defects, of which Dr. Griffith has spoken.

In regard to whether the drug treatment of the disease could cause these peculiar mental defects, I should be rather inclined to think that it can. I have known cases in which the bromide has caused such maniacal excitement as to cause the patient to jump from a second-story window,

but I hardly believe in the cases we have under our care that such could be the cause, because they have not received any bromide for a period of four months; we have stopped the use of it almost entirely.

DR. W. S. NEWCOMET read a paper on "Angio-Neurotic Edema in Children," which was discussed by Dr. Arthur Van Harlingen.

## BOOK REVIEWS.

*(All Exchanges and Books for Review should be sent to DR. C. G. CUMSTON, 871 Beacon Street, Boston.)*

THE DISORDERS OF DIGESTION IN INFANCY AND CHILDHOOD. By W. SOLTAU FENWICK, M.D., B.S. Lond. Member of the Royal College of Physicians; Physician to Out-Patients at the Evelina Hospital for Sick Children. With illustrations. Published by J. B. Lippincott Company. Philadelphia. 1897. Price \$3.50.

As "Research Scholar to the British Medical Association," the author has made a thorough investigation of the subject. Five thousand cases of disordered digestion have been studied during a period of several years and careful notes made. He is therefore exceptionally well qualified to speak with authority. American and European authors have, however, been freely consulted and are often quoted with approval. Starting with the normal healthy infantile digestion, the various forms of gastric and intestinal catarrh are considered in

turn and with the modern scientific vision. Ulcerations of the stomach and the disorders incident to various diseased conditions of children are fully considered in separate chapters. The appendix gives numerous valuable recipes and prescriptions and the methods in detail needed to make a chemical analysis of gastric contents. The illustrations consist of several photomicrographs and drawings of normal and pathological sections.

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PRACTICAL PATHOLOGY FOR STUDENTS AND PHYSICIANS. By ALDRED SCOTT WARTHIN, Ph.D., M.D. George Wahr, Publisher. Ann Arbor, Michigan. 1897. Price \$1.50.

More and more attention is paid nowadays in the medical schools to this subject of Practical Pathology,—and rightly, too. Students leave the school with a knowledge of what may be gained from *post mortem* examination, but few of them know just how

to obtain these facts. Just here Dr. Warthin's book will be of great value to student and practitioner alike. It is a sufficiently full and complete description of the conduct of a *post mortem* examination, with all the practical details and an abundance of scientific and medico-legal suggestions. Part second gives an equally valuable guide for the histological preservation, preparation and examination of the organs or parts removed.

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THE EYE AS AN AID IN GENERAL DIAGNOSIS. A handbook for the use of students and general practitioners. By E. H. LINNELL, M.D. The Edwards & Docker Co., Publishers. Philadelphia. 1897.

The author has here brought together from a wide experience of many years as well as exhaustive study of medical literature, an excellent statement of the diseased conditions of the eye which may be of diagnostic value in the detection of other diseases. One chapter is devoted to the converse statement in summarized form, of the diseased conditions present in various diseases. There are several colored plates, a complete index and the typography is irreproachable.

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DISEASES OF WOMEN AND UTERINE THERAPEUTICS. By E. MACNAUGHTON-JONES, M.D., etc. New York. 1897. Wm. Wood & Co., Publishers.

This is the seventh edition of this well known book, and it has certainly been much improved on. The author has brought it quite up to date, the more recent and improved *techniques* of the French, American and Ger-

man operators being fairly well considered. We are glad to note that special chapters on the diseases of the bladder, ureters and kidneys appear at the end of the volume.

To sum up, it may be said that this manual can be used as a good guide to the study of gynecology.

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WATER AND PUBLIC HEALTH. The relative purity of waters from different sources. By JAMES H. FUERTES, Member of the American Society of Civil Engineers. John Wiley & Sons, Publishers. New York City. 1897. Price \$1.50.

Though not written by a physician, this volume, with its 75 pages and 70 tables and diagrams, is of great value to the profession. It is a real contribution to the science of preventive medicine. A careful study has been made of the water supply of over 75 cities in this country and abroad, and a close relation found between the purity of the water supply and the freedom from typhoid fever. The writer believes that efficient filtration is the best safeguard to the community where the sources cannot be absolutely guarded.

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*Traité de Médecine et de Thérapeutique.* Edited by P. BROUARDEL and A. GILBERT. Vol. IV. Paris. 1897. J. B. Baillière et Fils, Publishers.

The fourth volume of this very excellent system of medicine is devoted to the diseases of the digestive system and peritoneum, the articles contained in the book being as follows: Diseases of the Mouth, by Teissier



and Roque; Diseases of the Esophagus, by Galliard; Diseases of the Stomach, by Hayem and Lion; Diseases of the Intestines, by Galliard; Intestinal Vermines, by Loboulbene; Infantile Dyspepsia and Diarrhœa, by Hutinel and Thiercelin; Diseases of the Peritoneum, by Dupré.

It may be truly said that this volume is a most perfect example of good medical writing, and like the preceding three volumes of the system, is first-class in every detail.

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THE LIVER OF DYSEPTICS. By EMILE BOIX, M.D. Translated from the French by Paul Richard Brown, M.D.; U. S. Army. New York. 1897. G. P. Putnam's Sons, Publishers.

This book is, without a doubt, one of the best monographs that has been contributed to medical pathology, and should certainly be read by the progressive physician.

The translation is decidedly poor and the use of the English language by the translator is remarkably droll and ungrammatical in many instances.

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*La Puberté chez la Femme.* By CHARLES BARBAUD, M.D., and CHARLES LEFEVRE, M.D. Published by A. Maloine, 21, Place de L'Ecole de Médecine. Paris. 1897.

This is the second of three volumes, the first treating of the menopause and the third to discuss the married life of women. The physiological conditions of a girl's life are first considered and then the peculiar psychical phenomena of that period. The diseases which may arise thus

early in female life together with the treatment which the authors have observed to be most successful constitute the main part of the book. Physicians who read French easily will find the book of considerable suggestive and practical value.

---

DAUGHTERS OF ÆSCULAPIUS. Stories written by alumnae and students of the Woman's Medical College of Pennsylvania. George W. Jacobs & Co., Publishers. Philadelphia. 1897. Price 75 cents net.

A series of brightly written, crisp and quite readable short stories, for the most part illustrating medical study and a physician's life. The peculiar adaptability of woman for certain phases of medical work is well brought out. One of the sketches skillfully tells the story of the life of Dr. Ann Preston, who was prominently connected with their college in the '60's.

---

SURGICAL HINTS FOR THE SURGEON AND GENERAL PRACTITIONER. By HOWARD LILIENHAL, M.D. Assistant Attending Surgeon to Mt. Sinai Hospital, New York City. International Journal of Surgery Co., Publishers. 1897. New York. Price 25 cents.

This little volume with its white cover, suggestive *before* use of asepsis, will prove of far more value than its price would seem to indicate. It may be tucked in the pocket and perused at odd moments. The information is suggestive and eminently practical. The simple, direct style of writing makes it attractive to the busy practitioner.



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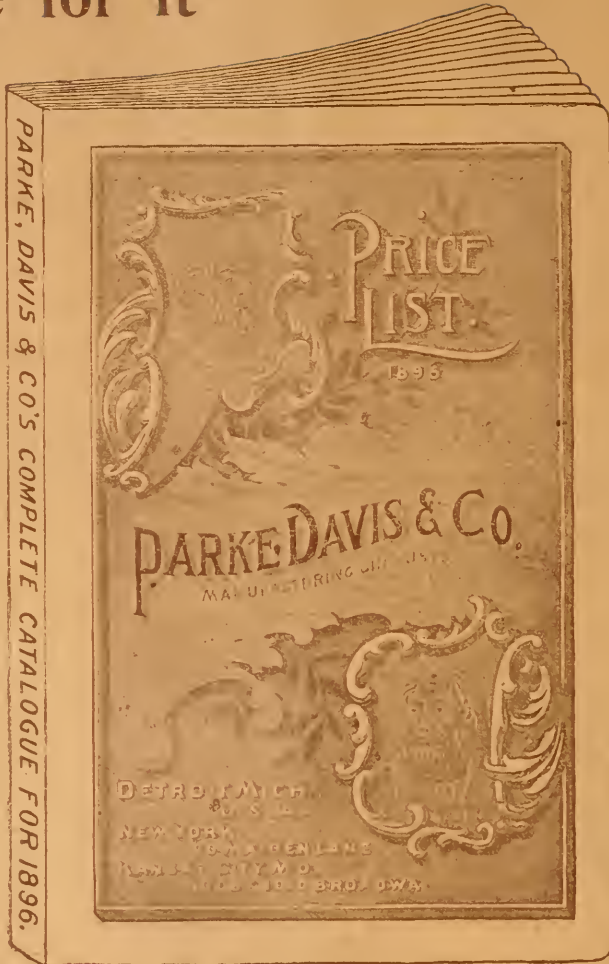
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